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# Determination of C2 to C12 Ambient Air Hydrocarbons in 39 U.S. Cities from 1984 through 1986

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# DETERMINATION OF $C_2$ TO $C_{12}$ AMBIENT AIR HYDROCARBONS IN 39 U.S. CITIES FROM 1984 THROUGH 1986

by

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# ABSTRACT

Currently more than 60 urban areas are not in compliance with the National Ambient Air Quality Standard (NAAQS) for ozone. The use of photochemical models will be necessary to forecast the nonmethane organic compound (NMOC) reductions needed to attain the NAAQS. These models require knowledge of the individual organic species in ambient air. To this end, speciated hydrocarbons were determined in over 800 ambient air samples obtained from 39 U.S. cities during 1984, 1985, and 1986. Whole-air samples were collected in electropolished, stainless steel spheres on weekdays from 6 to 9 A.M. during June through September each year. Two gas chromatographic (GC) procedures with cryogenic sample preconcentration were employed to separate and measure $C_2$ to $C_{12}$ hydrocarbon species. One, a packed silica-gel column, measured $C_2$ hydrocarbon species, while the second, a 60 m x 0.32 mm i.d. fused silica capillary column coated with a 1 μm thick liquid phase, separated $C_2$ to $C_{12}$ species. Menu driven software was developed to transfer GC data to a personal computer. The GC retention time identification table shows 314 uniquely numbered peaks, 97 of which are specifically named, 214 are identified by type (olefin, paraffin, or aromatic) and 3 are unknown. The 48 compounds seen in highest concentration consisted of 25 paraffins, 15 aromatics, 7 olefins, and acetylene. Sample concentrations of the 64 most abundant species are reported.

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## 1. INTRODUCTION

The ozone-forming potential of an air mass is strongly dependent on the ratio of nonmethane organic compounds (NMOC) to nitrogen oxides ($NO_x$). Reduction of this ratio by reducing NMOC emissions is believed to be the most effective means for reducing ozone levels in urban areas (U.S. EPA, 1984, 1981). Local pollution control agencies use photochemical computer models to estimate the NMOC reductions needed to achieve acceptable ozone concentrations. One of these models, the Empirical Kinetic Modeling Approach (EKMA), requires the input of local ambient NMOC and $NO_x$ concentrations in order to achieve precise results. Therefore, accurate measurements of ambient NMOC concentrations are clearly vital to the determination of NMOC reduction estimates. Recent EPA research has led to the development of a much more accurate and precise method for NMOC measurement than was previously available with commercial analyzers. The new method, a simplification of the gas chromatographic (GC) speciation technique without a GC column, uses cryogenic concentration of the air sample to yield an enhanced flame ionization detector (FID) response, and is referred to as the preconcentration direct-flame ionization detection (PDFID) method (McElroy et al., 1986; McElroy et al., 1985).

Currently in the U.S. more than 60 urban areas are not in compliance with the National Ambient Air Quality Standard (NAAQS) for ozone (Federal Register, 1983). In 1984 the EPA Office of Air Quality Planning and Standards (OAQPS) began an assistance program designed to determine NMOC in participating nonattainment cities using the new PDFID method. To further minimize potential sources of sampling and analysis error and to assure consistently high-quality measurements, air samples were collected in electropolished stainless steel (ss) canisters for analysis at a central laboratory. As part of this project, the Atmospheric Research and Exposure Assessment Laboratory (AREAL) of the EPA analyzed over 800 samples from 39 cities from 1984 through 1986 to determine the speciated hydrocarbon composition.

## 2. EXPERIMENTAL METHODS

### 2.1 Sampling

Integrated whole-air samples were collected during weekdays from 6 to 9 A.M. from June through September of 1984 through 1986. Samples were pumped into evacuated, electropolished (Summa process) stainless steel spheres (Scientific Instrumentation Specialists, Moscow, ID and Anderson Samplers, Inc., Atlanta, GA). The sampling equipment and protocol are described in a 1985 EPA report (McElroy et al., 1985) and in two papers by Dayton, McAllister, and Wagoner (1986) of Radian Corporation. Samples were air-freighted to Radian Corporation's Research Triangle Park location where they were given a sample identification number and analyzed by the PDFID method for total NMOC concentration. The AREAL analyzed about 15 percent of the samples to determine the detailed hydrocarbon concentrations. Samples were selected for analysis using the following criteria: (1) days where the ozone concentration was greater than 80 ppb; (2) equal distribution of samples through the sampling period and by day of the week; (3) at least eight samples per site; (4) unusual samples such as high NMOC, probable contamination, or strange distribution on the PDFID chromatogram. Table 1 lists the cities sampled with the corresponding number of samples by year.

### 2.2 Analysis

Two gas chromatographic analyses were employed to determine the presence of $C_2$ to $C_{12}$ hydrocarbons, because one column could not provide adequate separation of the $C_2$ hydrocarbons (ethane, ethylene, acetylene). These latter compounds were separated on a packed silica-gel column. $C_2$ to $C_{12}$ hydrocarbons were separated on a 60 m x 0.32 mm i.d. fused silica-capillary column coated with a 1 μm thick coating of a cross-linked, non-polar liquid phase (DB-1, J&W Scientific, Rancho Cordova, CA). Both analyses employed the cryogenic preconcentration of about 500 ml of air prior to injection and flame ionization detection. The details of these procedures are described in two "Research Protocol Method" (RPM) reports that are included in this report as Appendices B and C.

In the first year of the study both analyses were performed on a Hewlett-Packard HP-5880A GC equipped with dual FIDs. In 1985, the $C_2$ determinations were made using a Perkin Elmer Sigma 2B GC in order to reduce the time required to analyze a sample. In 1984 and 1985 both determinations employed a dual six-port valve configuration designed to route samples through the cryogenic trap, to inject the trap contents onto the column, or to back-flush the trap with helium. In 1986 the capillary analysis was changed to a one-valve configuration with toggle valves used to change from back-flush to trapping mode.

Hydrocarbons were identified by retention time and quantified by their FID response relative to a National Institute of Standards and Technology (NIST) propane-in-air standard reference material (SRM). Quality assurance measures included: (1) daily measurement of a propane-in-air standard, (2) duplicate determinations, (3) comparison of the results on the two columns, (4) comparison of the PDFID results of Radian and the AREAL measurements, and (5) analysis of some of the samples through both an olefin and an olefin and aromatics scrubber to help confirm peak identifications (Klosterman and Sigsby, 1967; Lonneman et al., 1983). Also, a canister storage study was conducted in 1985, the second year of the project.

TABLE 1. CITIES WHERE NMOC SAMPLES WERE COLLECTED

| EPA Region | City | Number of Samples | | |
|---|---|---|---|---|
| | | 1984 | 1985 | 1986 |
| I | Boston, MA | -- | 8 | -- |
| | Portland, ME | -- | 13 | -- |
| II | New Haven, CT | -- | -- | 16 |
| | Bridgeport, CT | -- | -- | 16 |
| | Bronx, NY | -- | -- | 16 |
| | Manhattan, NY | -- | -- | 12 |
| | Trenton, NJ | -- | -- | 16 |
| III | Baltimore, MD | -- | -- | 7 |
| | Wilks-Barre, PA | 9 | -- | -- |
| | Philadelphia, PA* | 7 | 24 | 14 |
| | Washington, DC | 10 | 11 | 11 |
| | Richmond, VA | 10 | 14 | -- |
| IV | Atlanta, GA | 7 | -- | 14 |
| | Birmingham, AL | 6 | -- | 13 |
| | Charlotte, NC | 16 | -- | -- |
| | Chattanooga, TN | 12 | -- | -- |
| | Memphis, TN | 8 | -- | -- |
| | Miami, FL | 3 | -- | -- |
| | West Palm Beach, FL | 8 | -- | -- |
| V | Akron, OH | 10 | -- | -- |
| | Cincinnati, OH | 7 | -- | -- |
| | Cleveland, OH | -- | 17 | -- |
| | Indianapolis, IN | 10 | -- | -- |
| | Chicago, IL* | -- | -- | 22 |
| VI | Beaumont, TX | 9 | 19 | 13 |
| | Clute, TX | 10 | 17 | -- |
| | Dallas, TX | 13 | 23 | 14 |
| | El Paso, TX | 8 | 17 | 9 |
| | Fort Worth, TX | 13 | 19 | 16 |
| | Houston, TX* | -- | 22 | 26 |
| | Texas City, TX | 13 | 15 | -- |
| | West Orange, TX | 16 | 16 | -- |
| | Baton Rouge, LA | -- | 16 | -- |
| | Lake Charles, LA | -- | 16 | -- |
| | Tulsa, OK | -- | -- | 12 |
| VII | Kansas City, MO | 11 | 18 | -- |
| | St. Louis, MO | -- | 18 | -- |
| | Denver, CO* | -- | -- | 25 |
| | Salt Lake City, UT* | -- | -- | 27 |

*City had two sites.

### 2.3 Data Reduction

The large amount of data--more than 800 samples with 120 to 240 peaks per sample--necessitated the use of a computerized data management system. Menu-driven software was developed for a personal computer (PC) to provide sample tracking and management, data acquisition from the HP-5880A GC, and report generation functions. Data were transferred bidirectionally between the GC and an IBM PC-XT via RS-232 interfaces and cable at 1200 bits/s. In 1984 and 1985, a BASIC program implemented the GC communication protocols and a dBASE III program provided sample tracking and management, data display, and report generation functions. This software was called the Instrument File Processor (IFP). In 1986 the software was rewritten with various improvements, and a compiled version called InLab Data Management System was created. InLab was used to upload the HP-5880A GC reports in 1986. The user's manual, which gives a detailed description of the software and how to use it, is included in this report as Appendix D.

## 3. RESULTS AND DISCUSSION

The limits of detection (LOD) and quantification (LOQ) were estimated using the method described by Knoll (1985). The LOD and LOQ were 0.04 and 0.12 ppb as carbon (ppbC), respectively. These values are a function of the sample amount injected onto the column; however, they remain constant for all GC peaks regardless of retention time.

The quantitative accuracy of this method depends upon the accuracy and precision of the calibration compound(s). We used an 8.22 ppmC propane-in-air SRM from the NIST for calibration and for daily quality assurance (QA) checks. A response factor was determined using response data from several SRM analyses each year at the beginning of the study. The same response factor was used throughout the study for all compounds. The assumption herein, that FID response for all hydrocarbons is identical, is not quite correct; but it is not far wrong. The work of Dietz (1967) shows that the relative FID response for a large number of paraffins, olefins, and aromatics is about ±10 percent. It would be very time consuming to make standards for even the most abundant 30 or 40 compounds and it would be very difficult to produce ppb standards with significantly better than ±10 percent accuracy.

The propane SRM response was monitored on a near daily basis throughout the study. Figures 1a and 1b show plots of the percent deviation of response from the initial response during the 1984, 1985, and 1986 studies. These plots indicate an overall variation for the 1984 through 1986 period of ±12 percent. The coefficient of variation (C.V.) of the initial analyses used to determine the 1985 response factor was 1.75 percent, while the C.V. over the entire 1985 study was 3.68 percent, demonstrating that the inter-day variation was a little more than twice the intra-day variation.

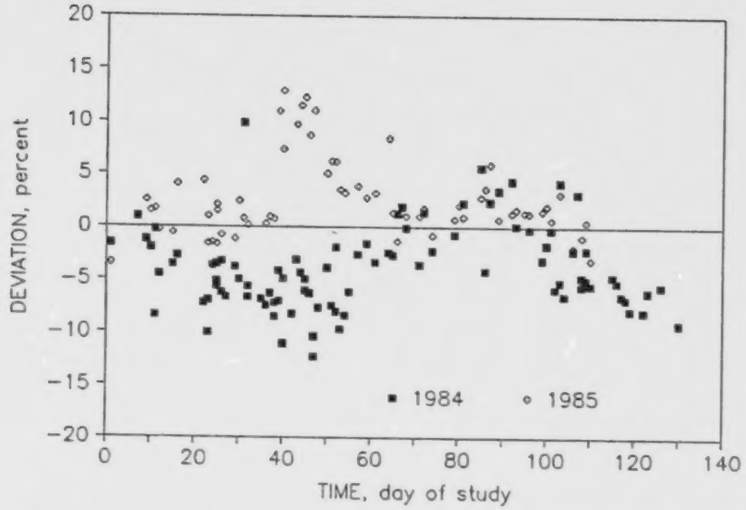

Figure 1a. Deviation of propane response on DB-1 column for 1984 through 1985.

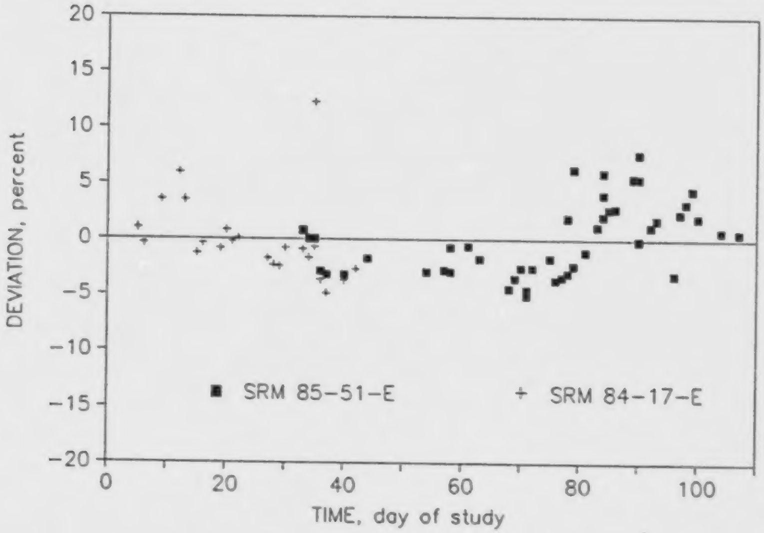

Figure 1b. Deviation of propane response on DB-1 column for 1986.

The quantitative precision of our capillary column method was determined by calculating individual peak coefficients of variation for the 12, 1984 duplicate determinations. The results are shown in Figure 2 as a plot of C.V. versus concentration. Concentration variability decreased (i.e., precision increased) as concentration increased. The concentration variability was typically less than 10 percent for concentrations greater than 9 ppbC. The C.V. for concentrations between 2 and 9 ppbC ranged up to 30 percent and up to 95 percent for concentrations less than 2 ppbC. No relationship was observed between concentration precision and retention time, which indicated that quantitative precision was the same for all peaks.

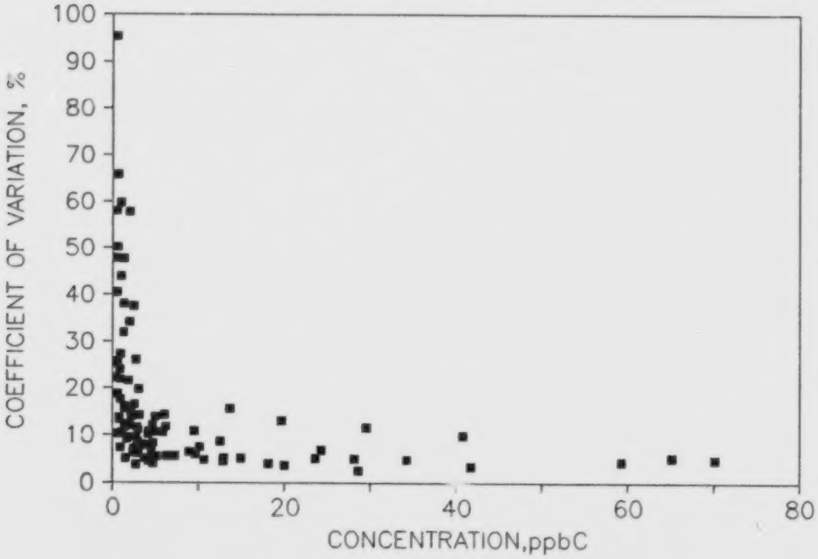

Figure 2. Concentration precision as a function of concentration.

Retention time identifications were determined by a combination of the following: (1) Analysis of known hydrocarbons prepared by syringe injection into Tedlar bags filled with air. (2) Reference to the chromatography literature retention times for non-polar columns such as SF-96, OV-101 and SE-30 (Zweig, 1972). This was particularly useful for determining the order of elution. (3) Comparison to retention time results of other investigators such as Papa, et al. (1968), Nelson and Quigley (1982), and Hayes and Pitzer (1982). (4)

Precolumn strippers to remove olefins and olefins plus aromatics from ambient samples (Klosterman and Sigby, 1967; Lonneman et al.,1983). This latter approach was useful for both the confirmation of identified peaks and the determination of unidentified peaks as paraffin, olefin, or aromatic. Usually one pair of stripper column analyses was performed per site per year.

The accuracy of the method depends upon the peaks being properly identified. The HP-5880A GC system names peaks according to a user-created calibration table of retention times, assigning a unique calibration number for each peak (O to 511), and an optional peak name (Hewlett-Packard Co.,1979). A retention index system based on user-identified reference peaks (up to 10) corrects for shifting retention times. A match is obtained if the corrected retention time falls within a calibration table retention window that consists of each retention time plus or minus user-specified tolerance percentages (one for all reference peaks and one for non-reference peaks). Our experience was that this method for naming peaks worked well for the complex organic compound mixture found in ambient air. A GC calibration table was prepared that identified 314 peaks by a calibration number. The table consisted of 97 peaks specifically named, 214 identified by carbon number and bond type (olefin, paraffin, or aromatic), and 3 labeled unknown. This table is shown in Appendix B.

Since retention times are used for identifying peaks, it follows that retention time precision is important. The standard deviations for the 113 most frequently observed peaks were determined and are plotted versus the mean retention times in Figure 3. This figure shows that the retention time standard deviation as a function of the retention time is not constant. At a retention time of 11.5 min, the standard deviation rises abruptly from 0.015 min to 0.11 min. It then gradually declines to 0.03 min at a retention time of 28 min. Although the mechanism for increasing the variability is not known, we believe this effect may be due to the restriction of carrier gas flow caused by water condensing on the column at -50 °C. Previously an even greater variability had been observed until a 23-cm piece of 1/16-in o.d. ss tube was introduced inside the oven to connect the GC column to the sampling/injection valve. Apparently, with this modification, the water condenses on the walls of the ss tube (rather than on the column itself) and carrier gas flow is not restricted.

Two particularly vexing problems encountered with the capillary analysis during this study should be mentioned. The connection between the capillary column and the 1/16-in ss inlet tube was susceptible to leakage, especially at subambient temperature. A standard chromatographic fitting (Swagelok™) with a vespel/40 percent graphite ferrule connected the fused silica column to the ss inlet tube. The leak apparently resulted from the expansion and contraction of the components used to make this column connection during the -50 to 200 °C temperature program procedure. The leak was more pronounced at subambient temperature making diagnosis extremely difficult. A commercially available chromatographic fitting (Valco™) specifically designed to accept a 0.5-mm o.d. capillary column at one end and a 1/16-in o.d. tube at the other significantly

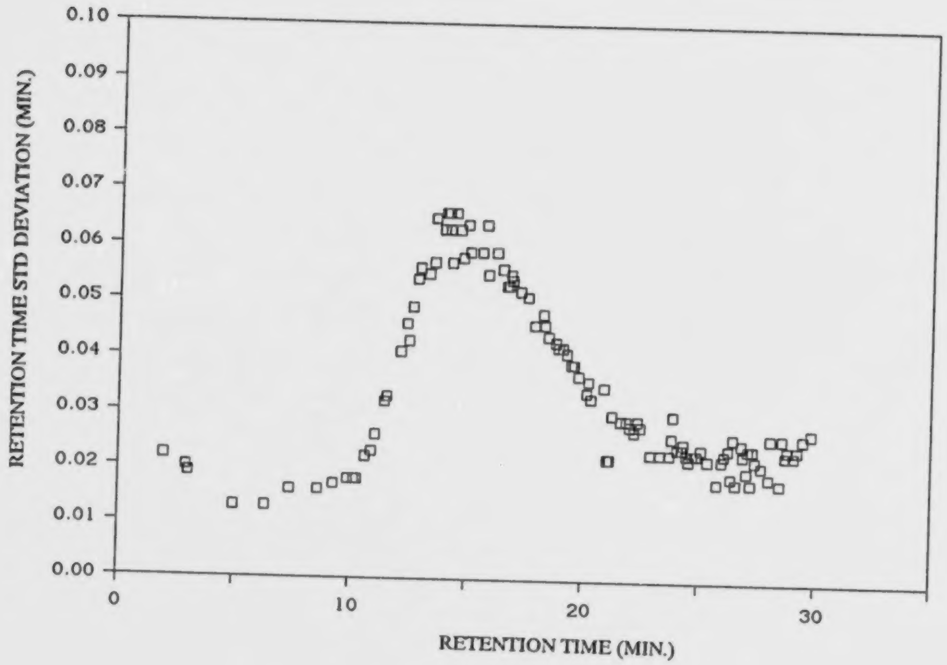

Figure 3. Retention time precision versus retention time.

reduced the column leak problem. We tested the connection integrity by analyzing our daily propane QA standard at both -50 °C and at room temperature. If the results were within about 1 percent of each other, the connection was deemed leak-tight.

The other problem resulted from removal of the GC manufacturer's chemical scrubber installed between the carrier gas flow controller and the inlet valves "to remove any bleed of plasticizers, etc., from the flow controller diaphragms" (Hewlett-Packard Co., 1980). We found that when the scrubber was removed, contamination--denoted by a particularly large peak at 23 min--was observed in the chromatograms. This problem was difficult to diagnose, because the contamination peak's appearance and magnitude were inconsistent; the peak would be present in the first few samples of a day, disappear for the remainder of the day, and reappear the next day. It would not have appeared at all if water were not present in the samples. Thus, analysis of dry zero air did not give an accurate system blank. To avoid this contamination the scrubber had to be in place and periodically reconditioned by heating under carrier flow (Hewlett-Packard Co., 1980).

The quality of stainless steel canisters as storage containers for $C_2$ to $C_{12}$ hydrocarbons was tested during the 1985 study. Six ambient samples were stored after initial analysis, re-analyzed once after one week, and re-analyzed three consecutive times at the end of a second week. Figures 4, 5, and 6 show graphically the results for one week storage, two weeks storage, and no storage (triplicate analyses). The abscissa of the plots is a number representing the chromatographic peaks. Each peak is assigned a unique number. The ordinate is the concentration difference from the initial concentration. As the plots show, the deviations center around zero, which indicates that canister storage had no observable effect on the samples. The plots also show no trend of increasing or decreasing deviation with peak number. Since the peak number (with a few exceptions) correlates with retention time, a trend of decreasing deviations would indicate that the compounds of higher molecular weight, carbon number, and vapor pressure would not store as well as the lower molecular weight species. We conclude that the entire range of $C_2$ to $C_{12}$ hydrocarbons determined by the method presented herein is unaffected by stainless steel canister storage for up to two weeks.

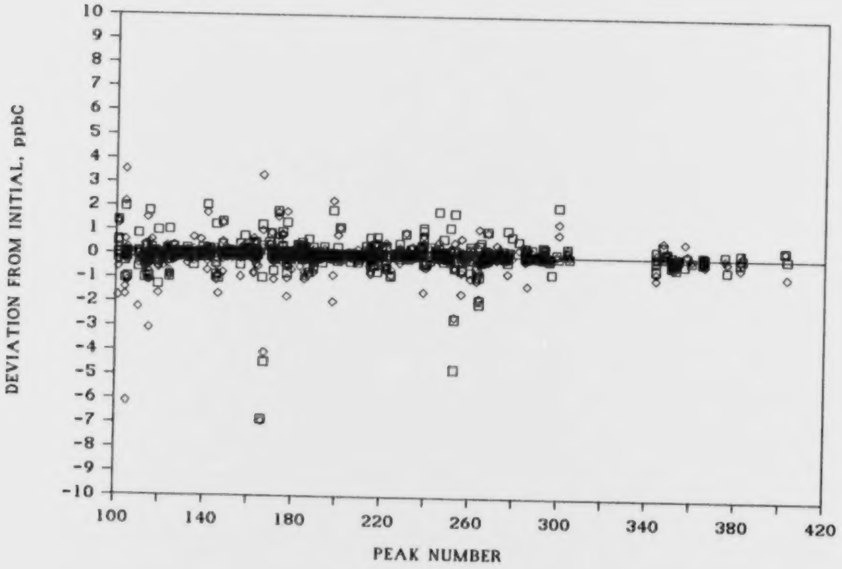

Figure 4. Deviations from initial concentration for triplicate analyses of six ambient air samples collected in electropolished stainless steel spheres. (Diamond markers indicate deviations between the initial and second analyses while squares represent deviations between the initial and third analyses.)

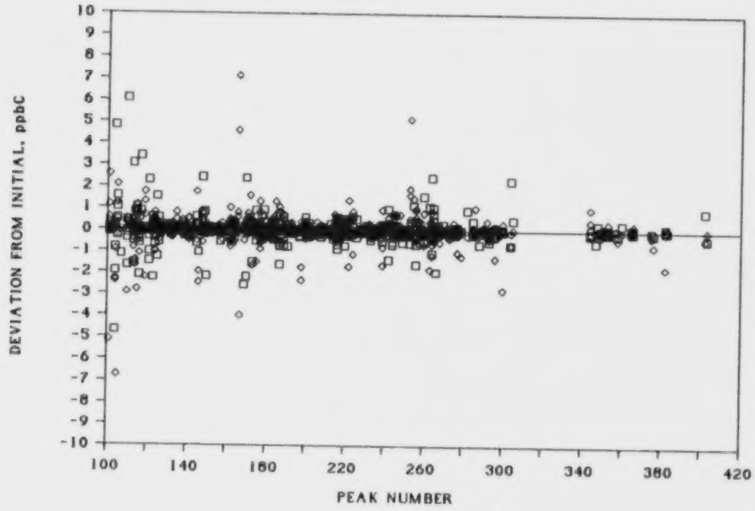

Figure 5. Deviations from initial concentration for six ambient air samples stored in electropolished stainless steel spheres for two, one-week periods. (Deviations between the initial and second analyses are indicated by diamonds while squares represent deviations between the second and third analyses.)

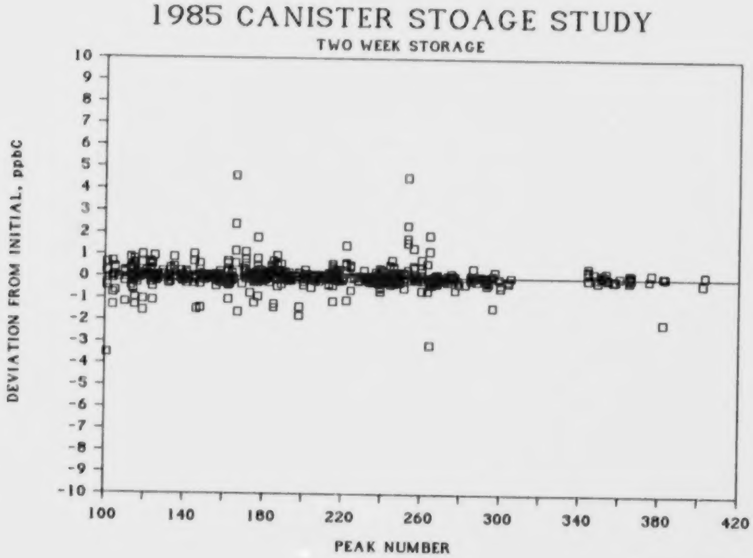

Figure 6. Deviations from initial concentration for six ambient air samples stored in electropolished stainless steel spheres for two weeks.

A statistical summary of the concentration results for the 48 most abundant peaks for all samples from 1984 through 1986 is shown in Table 2. The table lists compounds in descending order of abundance with their corresponding concentration range statistics, which are number of samples (n), median concentration in ppbC, minimum concentration (min), twenty-fifth and seventy-fifth percentile concentrations (25% and 75%), and maximum concentration (max). The 48 compounds consisted of 25 paraffins, 15 aromatics, 7 olefins, and acetylene. Three of the aromatics were not specifically identified. The sum of median concentrations for the paraffins, 266 ppbC, represented 60 percent of the total for the 48 compounds. Aromatics, at 116 ppbC, were 26 percent; olefins at 46.8 ppbC, were 11 percent; and acetylene, at 12.9 ppbC, was 2.7 percent.

The individual sample results identified by collection date and a numeric identifier are tabulated by site in Appendix A. Each site table contains concentrations in ppbC for the 64 most abundant identified compounds. The tables are subgrouped into 34 paraffins, 15 olefins, 14 aromatics, and acetylene, and include summations of unlisted paraffins, olefins, aromatics, and unidentified with the appropriate subgroup. The subgroup totals and the sum of all hydrocarbons are also listed.

## TABLE 2. CONCENTRATION* STATISTICS FOR MOST ABUNDANT COMPOUNDS

| Compound | N | Median | Min. | 25% | 75% | Max. |
|---|---|---|---|---|---|---|
| Isopentane | 832 | 45.3 | 1.4 | 26.2 | 71.6 | 3393 |
| *n*-Butane | 833 | 40.3 | 4.5 | 23.9 | 65.5 | 5448 |
| Toluene | 836 | 33.8 | 2.7 | 20.6 | 56.6 | 1299 |
| Propane | 835 | 23.5 | 1.8 | 12.2 | 45.2 | 393 |
| Ethane | 830 | 23.3 | 0.6 | 12.4 | 41.0 | 470 |
| *n*-Pentane | 834 | 22.0 | 1.0 | 12.5 | 36.0 | 1450 |
| Ethylene | 707 | 21.4 | 1.2 | 13.2 | 35.8 | 1001 |
| *m&p*-Xylene | 836 | 18.1 | 1.3 | 11.3 | 30.0 | 338 |
| 2-Methylpentane | 836 | 14.9 | 1.2 | 8.5 | 23.5 | 647 |
| Isobutane | 835 | 14.8 | 1.4 | 8.4 | 28.6 | 1433 |
| Acetylene | 709 | 12.9 | ** | 7.3 | 23.2 | 114 |
| Benzene | 835 | 12.6 | 1.0 | 7.9 | 19.9 | 273 |
| *n*-Hexane, 2-Ethyl-1-Butene | 836 | 11.0 | 0.8 | 6.2 | 18.4 | 601 |
| 3-Methylpentane | 831 | 10.7 | 0.1 | 6.4 | 16.6 | 351 |
| 1,2,4-Trimethylbenzene | 828 | 10.6 | ** | 6.7 | 17.1 | 81 |
| Propylene | 835 | 7.7 | 0.4 | 4.3 | 14.3 | 455 |
| 2-Methylhexane | 763 | 7.3 | 0.2 | 4.5 | 11.7 | 173 |
| *o*-Xylene | 831 | 7.2 | 0.9 | 4.7 | 11.6 | 79 |
| 2,2,4-Trimethylpentane | 835 | 6.8 | 0.4 | 3.9 | 11.6 | 106 |
| Methylcyclopentane | 834 | 6.4 | 0.5 | 3.7 | 10.3 | 293 |
| 3-Methylhexane | 828 | 5.9 | 0.3 | 3.5 | 9.7 | 168 |
| 2-Methylpropene, Butene-1 | 827 | 5.9 | ** | 3.8 | 9.8 | 365 |
| Ethylbenzene | 836 | 5.9 | 0.7 | 3.6 | 9.8 | 159 |
| *m*-Ethyltoluene | 832 | 5.3 | 0.1 | 3.3 | 8.6 | 83 |
| *n*-Heptane | 831 | 4.7 | 0.1 | 2.8 | 8.2 | 233 |
| 2,3-Dimethylbutane | 834 | 3.8 | 0.3 | 2.3 | 6.1 | 177 |
| *c*-2-Pentene | 750 | 3.6 | ** | 1.9 | 6.0 | 339 |
| 1,2,3-Trimethylbenzene | 758 | 3.4 | 0.1 | 1.6 | 5.7 | 1701 |
| Methylcyclohexane | 836 | 3.4 | 0.3 | 2.0 | 6.0 | 184 |
| n-Decane | 835 | 3.3 | 0.2 | 1.9 | 6.0 | 138 |
| 1,3,5-Trimethylbenzene | 825 | 3.0 | 0.3 | 2.0 | 5.1 | 51 |
| C11 Aromatic | 773 | 3.0 | 0.2 | 1.8 | 4.7 | 71 |
| *t*-2-Pentene | 807 | 2.9 | 0.1 | 1.5 | 4.7 | 291 |
| *o*-Ethyltoluene | 836 | 2.9 | 0.2 | 1.9 | 4.6 | 54 |
| *p*-Ethyltoluene | 831 | 2.8 | 0.1 | 1.8 | 4.7 | 54 |
| C10 Aromatic | 832 | 2.8 | 0.2 | 1.8 | 4.5 | 235 |
| *n*-Octane | 799 | 2.6 | 0.2 | 1.6 | 4.6 | 163 |
| 2-Methyl-1-Butene | 822 | 2.6 | 0.1 | 1.4 | 4.4 | 242 |
| 1,2-Dimethyl-3-Ethylbenzene | 756 | 2.5 | 0.2 | 1.6 | 4.3 | 149 |
| *t*-2-Butene | 811 | 2.5 | 0.1 | 1.4 | 4.2 | 337 |
| 2,3,4-Trimethylpentane | 833 | 2.5 | 0.1 | 1.5 | 4.4 | 78 |
| 2-Methylheptane | 820 | 2.5 | 0.1 | 1.3 | 4.2 | 75 |
| 1,4-Diethylbenzene | 821 | 2.4 | 0.1 | 1.5 | 4.0 | 33 |
| 3-Methylheptane | 832 | 2.2 | 0.1 | 1.4 | 3.9 | 109 |
| *n*-Nonane | 821 | 2.2 | 0.2 | 1.3 | 4.2 | 89 |
| Cyclohexane | 817 | 2.2 | 0.2 | 1.1 | 4.8 | 409 |
| 2,4-Dimethylpentane | 827 | 2.2 | 0.2 | 1.3 | 3.8 | 72 |
| Cyclopentane | 823 | 2.1 | 0.1 | 1.2 | 3.2 | 104 |

* All concentrations are parts-per-billion as carbon.

**Concentrations below the limit of quantification (0.1 ppbC).

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# APPENDIX A

# HYDROCARBON CONCENTRATION DATA TABLES

This appendix consists of 44 tables of data gathered from 39 cities during the period 1984-1986. The tables are listed alphabetically and show the concentrations of the 64 most abundant compounds identified in each ambient air sample. All concentrations are parts per billion as carbon (ppbC) and asterisks (*) indicate those concentrations that were below the limit of quantification (0.1 ppbC). The individual compounds are arranged by functional group (paraffins, olefins, and aromatics) with a collective concentration of all unidentified compounds within that group also listed. At the end of each table is a summation by group and total NMOC concentration. (The sample identification numbers were assigned by the sampling contractor and are unique for each year.)

TABLE A- 1a. Hydrocarbon concentration data for AKRON, OH

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1209 84/07/11 | 1324 84/07/18 | 1402 84/07/24 | 1593 84/08/03 | 1618 84/08/06 | 1723 84/08/13 | 2159 84/09/07 | 2226 84/09/12 |
| PARAFFINS | | | | | | | | |
| ETHANE | 19.2 | 25.6 | 29.4 | 26.2 | 62.5 | 44.3 | 34.5 | 40.6 |
| PROPANE | 14.5 | 20.9 | 20.8 | 17.7 | 40.4 | 30.8 | 20.8 | 31.8 |
| ISOBUTANE | 8.5 | 11.9 | 10.8 | 9.5 | 16.6 | 13.3 | 10.8 | 15.2 |
| n-BUTANE | 23.8 | 27.1 | 29.0 | 27.5 | 42.3 | 35.4 | 31.6 | 38.9 |
| ISOPENTANE | 22.8 | 24.1 | 24.2 | 26.3 | 34.0 | 27.1 | 26.8 | 31.4 |
| n-PENTANE | 11.1 | 11.5 | 11.3 | 12.2 | 17.6 | 13.2 | 12.4 | 14.5 |
| 2,2-DIMETHYLBUTANE | 0.7 | 0.5 | 0.5 | 0.7 | 1.1 | 0.6 | 0.5 | 0.7 |
| CYCLOPENTANE | 0.7 | 0.7 | 0.7 | 0.8 | 1.1 | 0.8 | 0.9 | 1.0 |
| 2,3-DIMETHYLBUTANE | 2.0 | 2.0 | 1.9 | 2.4 | 2.9 | 2.2 | 2.3 | 2.6 |
| 2-METHYLPENTANE | 8.4 | 8.2 | 8.0 | 9.5 | 12.6 | 9.3 | 12.2 | 12.2 |
| 3-METHYLPENTANE | 10.0 | 5.2 | 7.1 | 9.0 | 12.3 | 8.6 | 7.7 | 7.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.1 | 6.7 | 6.2 | 8.8 | 11.5 | 8.1 | 7.2 | 7.9 |
| METHYLCYCLOPENTANE | 4.6 | 4.1 | 3.8 | 4.8 | 6.3 | 4.3 | 4.4 | 4.7 |
| 2,4-DIMETHYLPENTANE | 1.3 | 1.5 | 1.6 | 1.8 | 2.2 | 1.6 | 1.5 | 1.3 |
| CYCLOHEXANE | 1.5 | 1.1 | 1.1 | 2.3 | 2.5 | 1.2 | 1.3 | 1.4 |
| 2-METHYLHEXANE | 2.6 | 4.7 | 2.6 | 3.7 | 4.8 | 5.8 | 3.9 | 6.4 |
| 2,3-DIMETHYLPENTANE | 1.5 | * | 1.4 | 2.0 | 2.3 | * | 2.0 | * |
| 3-METHYLHEXANE | * | 3.0 | 5.9 | 3.7 | 4.8 | 4.4 | 5.0 | 7.7 |
| 2,2,4-TRIMETHYLPENTANE | 1.8 | 2.8 | 3.5 | 4.0 | 2.1 | 3.4 | 5.0 | 4.5 |
| n-HEPTANE | 2.6 | 3.3 | 2.4 | 4.0 | 5.4 | 3.9 | 3.4 | 3.8 |
| METHYLCYCLOHEXANE | 2.6 | 2.5 | 2.0 | 2.9 | 4.1 | 2.5 | 2.5 | 2.9 |
| 2,5-DIMETHYLHEXANE | 0.8 | 0.9 | 0.8 | 1.0 | 1.2 | 0.9 | 1.3 | 1.3 |
| 2,4-DIMETHYLHEXANE | 1.3 | 1.0 | 1.1 | 1.4 | 1.3 | 1.0 | 1.4 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 0.5 | 0.9 | 0.9 | 1.2 | 1.2 | 1.0 | 1.4 | 1.5 |
| 2-METHYLHEPTANE | 1.1 | 1.5 | 0.9 | 1.3 | 2.2 | 1.2 | 1.9 | 2.1 |
| 3-METHYLHEPTANE | 1.4 | 1.6 | 1.3 | 1.8 | 2.2 | 1.6 | 2.0 | 2.2 |
| 2,2,5-TRIMETHYLHEXANE | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.3 | 0.5 | 0.5 |
| n-OCTANE | 1.3 | 1.7 | 1.6 | 1.8 | 2.2 | 1.9 | 1.6 | 2.5 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | 0.1 |
| 4-METHYLOCTANE | * | 0.9 | * | 1.1 | 1.2 | 1.0 | 2.4 | 1.5 |
| 3-METHYLOCTANE | 0.6 | 0.7 | 0.7 | 0.9 | 1.0 | 0.8 | 1.0 | 1.1 |
| n-NONANE | 1.1 | 1.3 | 2.6 | 2.0 | 2.2 | 1.8 | 1.9 | 3.1 |
| 4-METHYLNONANE | 2.2 | * | * | * | * | * | * | 1.1 |
| n-DECANE | 2.0 | 2.4 | 2.5 | 2.2 | 3.4 | 4.5 | 3.6 | 6.5 |
| SUM OTHER PARAFFINS | 46.5 | 31.9 | 28.1 | 29.7 | 38.4 | 28.5 | 24.0 | 40.4 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 9.7 | 9.0 | 8.9 | 13.2 | 12.7 | 10.0 | 14.0 | 16.7 |
| PROPENE | 2.8 | 3.1 | 2.7 | 3.6 | 3.6 | 2.8 | 4.7 | 4.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.2 | 2.5 | 2.8 | 3.9 | 3.9 | 2.9 | 3.4 | 3.5 |
| 1,3-BUTADIENE | 8.1 | 0.5 | 1.0 | 37.4 | 13.1 | 0.5 | 0.6 | 0.7 |
| t-2-BUTENE | 1.0 | 1.0 | 1.0 | 1.5 | 1.8 | 0.9 | 1.0 | 0.1 |
| c-2-BUTENE | 0.8 | 0.7 | 0.8 | 1.0 | 1.1 | 0.7 | 1.0 | 1.0 |
| 1-PENTENE | 5.1 | 1.2 | 1.4 | 0.7 | 4.8 | 0.9 | 0.6 | 0.9 |
| 2-METHYL-1-BUTENE | 0.9 | 0.9 | 1.0 | 1.2 | 1.3 | 0.9 | 1.4 | 2.4 |
| ISOPRENE | 0.7 | 0.8 | 1.5 | 0.5 | 0.7 | 0.6 | 0.6 | 0.6 |
| t-2-PENTENE | 0.9 | 1.0 | 1.0 | 1.3 | 1.4 | 0.9 | 1.4 | 1.6 |
| c-2-PENTENE | 0.8 | 0.8 | 0.6 | 0.9 | 1.3 | 0.8 | 2.0 | 1.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 0.0 | 0.1 | 0.7 | 1.1 | 2.3 | 0.1 | 0.1 |
| 2-METHYL-2-PENTENE | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 7.3 | 0.6 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 1.8 | 1.4 | 1.5 | 4.5 | 1.8 | 1.5 | 2.5 |
| a-PINENE | 0.4 | 0.6 | 0.4 | 0.6 | 0.8 | 0.7 | * | 0.5 |
| SUM OTHER OLEFINS | 62.1 | 39.5 | 48.5 | 34.6 | 46.6 | 46.7 | 40.1 | 33.7 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 4.6 | 4.9 | 5.4 | 6.0 | 7.3 | 5.9 | 10.2 | 7.1 |
| TOLUENE | 15.1 | 17.3 | 18.7 | 21.0 | 26.8 | 19.5 | 19.4 | 20.6 |
| ETHYLBENZENE | 2.6 | 2.9 | 2.7 | 3.5 | 4.1 | 3.1 | 3.9 | 3.9 |
| m&p-XYLENE | 9.2 | 8.9 | 8.9 | 11.9 | 13.7 | 10.7 | 14.1 | 13.9 |
| o-XYLENE | 3.2 | 3.5 | 3.4 | 4.1 | 4.8 | 3.9 | 4.9 | 4.8 |
| n-PROPYLBENZENE | 1.2 | 1.1 | 0.5 | 1.2 | 1.5 | 1.2 | 1.8 | 1.6 |
| m-ETHYLTOLUENE | 3.4 | 3.3 | 3.3 | 3.5 | 4.2 | 3.8 | 4.5 | 4.7 |
| p-ETHYLTOLUENE | 2.3 | 2.3 | 2.0 | 2.4 | 2.9 | 2.7 | 2.8 | 3.4 |
| 1,3,5-TRIMETHYLBENZENE | 1.8 | 2.1 | 2.1 | 2.7 | 2.9 | 3.0 | 3.1 | 2.8 |
| o-ETHYLTOLUENE | 2.0 | 1.8 | 2.2 | 2.2 | 2.7 | 2.5 | 3.0 | 3.6 |
| 1,2,4-TRIMETHYLBENZENE | 5.3 | 5.7 | 5.9 | 6.6 | 7.8 | 7.5 | 7.9 | 8.6 |
| n-DECANE | 5.2 | 3.4 | 4.6 | 3.4 | 4.0 | 6.0 | 4.1 | 4.6 |
| 1,4-DIETHYLBENZENE | 1.5 | 1.9 | 1.8 | 2.3 | 2.7 | 2.4 | 2.5 | 2.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.5 | 2.2 | 2.5 | 1.8 | 2.4 | 2.7 | 1.9 | 2.1 |
| SUM OTHER AROMATICS | 45.7 | 26.9 | 30.9 | 26.7 | 34.2 | 32.8 | 26.8 | 33.4 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 6.2 | 6.9 | 6.2 | 7.6 | 8.8 | 7.4 | 14.0 | 23.3 |
| SUM UNKNOWNS | 4.7 | 5.8 | 0.1 | 2.6 | 2.5 | 2.9 | 0.7 | 1.3 |
| SUM PARAFFINS | 208.7 | 213.9 | 216.4 | 226.1 | 348.0 | 266.7 | 241.2 | 303.6 |
| SUM OLEFINS | 98.0 | 64.3 | 73.9 | 103.7 | 99.9 | 81.4 | 73.6 | 71.7 |
| SUM AROMATICS | 106.2 | 88.9 | 95.6 | 100.0 | 122.7 | 108.4 | 111.6 | 118.1 |
| SUM HYDROCARBONS | 424.0 | 379.9 | 392.3 | 440.2 | 582.1 | 466.9 | 441.3 | 518.2 |

TABLE A- 1b. Hydrocarbon concentration data for AKRON, OH

| Compound | ID Number and Sample Date | |
|---|---|---|
| | 2298<br>84/09/18 | 2489<br>84/09/28 |
| PARAFFINS | | |
| ETHANE | 52.3 | 26.8 |
| PROPANE | 33.2 | 16.0 |
| ISOBUTANE | 18.9 | 6.8 |
| n-BUTANE | 53.2 | 20.4 |
| ISOPENTANE | 45.4 | 16.5 |
| n-PENTANE | 21.0 | 7.6 |
| 2,2-DIMETHYLBUTANE | 1.2 | 0.4 |
| CYCLOPENTANE | 1.6 | 0.5 |
| 2,3-DIMETHYLBUTANE | 4.3 | 1.4 |
| 2-METHYLPENTANE | 16.8 | 7.0 |
| 3-METHYLPENTANE | 13.5 | 5.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.7 | 4.9 |
| METHYLCYCLOPENTANE | 8.5 | 2.9 |
| 2,4-DIMETHYLPENTANE | 2.9 | 1.0 |
| CYCLOHEXANE | 2.6 | 0.8 |
| 2-METHYLHEXANE | 7.3 | 3.2 |
| 2,3-DIMETHYLPENTANE | 4.2 | * |
| 3-METHYLHEXANE | 7.5 | 3.3 |
| 2,2,4-TRIMETHYLPENTANE | 9.4 | 3.0 |
| n-HEPTANE | 7.0 | 1.9 |
| METHYLCYCLOHEXANE | 5.0 | 1.6 |
| 2,5-DIMETHYLHEXANE | 2.2 | 0.8 |
| 2,4-DIMETHYLHEXANE | 2.3 | 0.9 |
| 2,3,4-TRIMETHYLPENTANE | 2.9 | 0.9 |
| 2-METHYLHEPTANE | 3.3 | 1.2 |
| 3-METHYLHEPTANE | 3.8 | 1.2 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 0.3 |
| n-OCTANE | 3.1 | 1.2 |
| 2,4-DIMETHYLHEPTANE | 0.2 | * |
| 4-METHYLOCTANE | 1.7 | 0.8 |
| 3-METHYLOCTANE | 1.5 | 0.5 |
| n-NONANE | 2.1 | 0.7 |
| 4-METHYLNONANE | * | * |
| n-DECANE | 3.2 | 1.2 |
| SUM OTHER PARAFFINS | 28.0 | 17.0 |

| | | |
|---|---|---|
| OLEFINS | | |
| ETHYLENE | 28.4 | 9.4 |
| PROPENE | 8.2 | 2.3 |
| 2-METHYLPROPYLENE,BUTENE-1 | 5.4 | 1.8 |
| 1,3-BUTADIENE | 1.8 | 0.5 |
| t-2-BUTENE | 2.1 | 0.8 |
| c-2-BUTENE | 1.8 | 0.6 |
| 1-PENTENE | 1.5 | 1.6 |
| 2-METHYL-1-BUTENE | 3.6 | 0.8 |
| ISOPRENE | 1.1 | 0.4 |
| t-2-PENTENE | 2.8 | 0.9 |
| c-2-PENTENE | 4.1 | 1.1 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.2 | 0.0 |
| 2-METHYL-2-PENTENE | 1.4 | 1.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 9.7 | 0.8 |
| a-PINENE | 0.3 | 0.4 |
| SUM OTHER OLEFINS | 52.6 | 30.0 |
| AROMATICS | | |
| BENZENE | 15.2 | 4.6 |
| TOLUENE | 36.1 | 12.0 |
| ETHYLBENZENE | 6.8 | 2.5 |
| m&p-XYLENE | 24.1 | 9.1 |
| o-XYLENE | 8.5 | 3.1 |
| n-PROPYLBENZENE | 2.3 | 0.9 |
| m-ETHYLTOLUENE | 7.1 | 2.9 |
| p-ETHYLTOLUENE | 3.8 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 4.4 | 1.8 |
| o-ETHYLTOLUENE | 3.4 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 12.0 | 4.7 |
| n-DECANE | 4.4 | 1.7 |
| 1,4-DIETHYLBENZENE | 3.9 | 1.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.2 | 0.6 |
| SUM OTHER AROMATICS | 39.0 | 17.1 |
| SUMMARY | | |
| ACETYLENE | 24.1 | 7.7 |
| SUM UNKNOWNS | 0.3 | * |
| SUM PARAFFINS | 386.1 | 159.9 |
| SUM OLEFINS | 125.6 | 53.0 |
| SUM AROMATICS | 173.7 | 66.8 |
| SUM HYDROCARBONS | 710.1 | 287.5 |

TABLE A- 2a. Hydrocarbon concentration data for ATLANTA, GA

| Compound | ID Number and Sample Date<br>1196<br>86/06/13 | 1310<br>84/07/18 | 1341<br>86/06/23 | 1433<br>86/06/27 | 1473<br>84/07/26 | 1494<br>84/07/30 | 1540<br>86/07/03 | 1586<br>86/07/08 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 11.2 | 12.3 | 15.4 | 15.3 | 12.5 | 4.1 | 8.1 | 17.6 |
| PROPANE | 12.1 | 9.1 | 18.1 | 11.9 | 18.4 | 3.6 | 7.5 | 14.6 |
| ISOBUTANE | 8.3 | 5.6 | 12.3 | 7.9 | 11.1 | 2.4 | 3.8 | 12.5 |
| n-BUTANE | 33.4 | 19.3 | 51.6 | 30.9 | 39.2 | 9.4 | 14.2 | 49.4 |
| ISOPENTANE | 30.8 | 25.5 | 49.3 | 33.1 | 66.6 | 14.6 | 12.9 | 49.5 |
| n-PENTANE | 12.3 | 12.1 | 21.9 | 11.7 | 31.1 | 6.7 | 5.4 | 19.8 |
| 2,2-DIMETHYLBUTANE | 0.7 | 1.0 | 1.2 | 0.5 | 2.9 | 0.5 | * | 1.3 |
| CYCLOPENTANE | 0.9 | 1.0 | 3.7 | 2.7 | 2.4 | 0.5 | 0.5 | 3.8 |
| 2,3-DIMETHYLBUTANE | 2.7 | 2.5 | 5.4 | 3.6 | 8.1 | 1.4 | 1.1 | 5.5 |
| 2-METHYLPENTANE | 9.5 | 10.5 | 15.6 | 9.7 | 29.3 | 5.4 | 4.0 | 15.7 |
| 3-METHYLPENTANE | 7.4 | 9.9 | 13.4 | 10.2 | 30.6 | 3.1 | 3.5 | 11.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.6 | 7.1 | 9.7 | 6.2 | 24.2 | 3.2 | 2.4 | 9.6 |
| METHYLCYCLOPENTANE | 4.2 | 3.9 | 6.4 | 3.9 | 13.4 | 2.1 | 1.6 | 6.1 |
| 2,4-DIMETHYLPENTANE | 2.3 | 2.1 | 4.0 | 2.4 | 5.4 | 1.2 | 0.9 | 3.5 |
| CYCLOHEXANE | 0.8 | 0.7 | 1.2 | 0.6 | 4.5 | 0.6 | 0.2 | 1.1 |
| 2-METHYLHEXANE | 3.1 | 3.6 | 6.1 | * | 11.5 | 2.1 | * | 5.6 |
| 2,3-DIMETHYLPENTANE | 3.1 | 5.1 | 6.6 | 9.8 | 8.5 | 1.4 | 2.6 | 5.2 |
| 3-METHYLHEXANE | 3.9 | 18.6 | 7.1 | 4.1 | 17.7 | 2.1 | 1.5 | 5.8 |
| 2,2,4-TRIMETHYLPENTANE | 7.7 | 6.3 | 12.7 | 7.7 | 12.8 | 3.7 | 3.2 | 11.4 |
| n-HEPTANE | 5.1 | 3.8 | 4.3 | 4.0 | 18.2 | 1.5 | 0.9 | 3.5 |
| METHYLCYCLOHEXANE | 2.0 | 2.4 | 3.1 | 1.8 | 24.8 | 1.0 | 0.7 | 2.7 |
| 2,5-DIMETHYLHEXANE | 1.5 | 1.3 | 2.3 | 1.5 | 4.6 | 0.7 | * | 2.2 |
| 2,4-DIMETHYLHEXANE | 1.6 | 3.6 | 2.6 | 1.6 | 5.2 | 1.0 | 0.5 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 3.0 | 2.1 | 5.0 | 3.0 | 4.5 | 1.1 | 1.3 | 4.4 |
| 2-METHYLHEPTANE | 0.8 | 2.4 | 2.6 | 2.5 | 6.1 | 0.7 | 0.3 | 2.5 |
| 3-METHYLHEPTANE | 1.5 | 2.1 | 2.6 | 1.8 | 5.4 | 1.0 | 0.6 | 2.4 |
| 2,2,5-TRIMETHYLHEXANE | 1.3 | 0.7 | 2.1 | 1.3 | 1.7 | 0.4 | 0.5 | 1.9 |
| n-OCTANE | 2.4 | 1.3 | 2.2 | 2.1 | 3.8 | 0.5 | 0.7 | 2.7 |
| 2,4-DIMETHYLHEPTANE | 0.8 | * | 1.1 | 0.6 | 0.3 | * | 0.4 | 0.8 |
| 4-METHYLOCTANE | 1.8 | * | 2.5 | 1.8 | 6.7 | 0.6 | 0.7 | 2.8 |
| 3-METHYLOCTANE | 1.2 | 1.2 | 1.9 | 1.2 | 2.9 | 0.5 | 0.5 | 1.7 |
| n-NONANE | 2.1 | 15.1 | 3.8 | 2.7 | 9.4 | 0.6 | 1.0 | 3.1 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.5 | 2.4 | 5.5 | 3.3 | 7.8 | 1.1 | 0.9 | 4.7 |
| SUM OTHER PARAFFINS | 23.2 | 95.4 | 40.0 | 18.6 | 119.2 | 34.1 | 6.9 | 32.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEF IS | | | | | | | | |
| ETHY | | | | | | | | |
| PROP NE | 18.4 | 25.9 | 27.1 | 28.8 | 39.0 | 10.5 | 9.0 | 31.6 |
| 2-ME E | 6.3 | 8.1 | 9.0 | 6.3 | 17.3 | 3.3 | 2.6 | 8.2 |
| 1,3- YLPROPYLENE,BUTENE-1 | 5.8 | 5.9 | 8.7 | 5.0 | 10.9 | 2.6 | 2.6 | 7.8 |
| t-2- TADIENE | 1.2 | 1.7 | 2.0 | 1.0 | 3.5 | 0.4 | * | 0.9 |
| c-2- TENE | 1.8 | 1.9 | 2.6 | 1.5 | 4.1 | 0.7 | 0.3 | 2.7 |
| 1-PE TENE | 1.3 | 1.3 | 1.9 | 1.2 | 2.7 | 0.6 | 0.4 | 2.0 |
| 2-ME ENE | 1.2 | 1.1 | 2.0 | 1.1 | 2.3 | 0.9 | * | 2.0 |
| ISOP YL-1-BUTENE | 2.1 | 1.5 | 2.7 | 2.0 | 3.5 | 1.0 | 0.4 | 3.2 |
| t-2- NE | 1.9 | 2.0 | 4.4 | 2.5 | 3.9 | 1.0 | * | 2.1 |
| c-2- NTENE | 2.1 | 1.9 | 3.3 | 1.6 | 7.3 | 1.1 | * | 3.6 |
| 2-ME NTENE | 2.9 | 2.1 | 5.2 | 2.5 | 4.3 | 1.3 | 0.9 | 4.4 |
| 2-ME YL-1-PENTENE,1-HEXENE | 0.3 | * | 1.5 | 4.4 | 1.2 | 1.2 | 0.1 | * |
| 2,2, YL-2-PENTENE | 1.0 | 1.1 | 1.3 | 1.0 | 2.2 | 0.4 | 0.0 | 1.3 |
| a-PI TRIMETHYL-1-BUTENE | 1.3 | 0.9 | 1.5 | 1.2 | 4.6 | 0.5 | 0.5 | 1.1 |
| SUM NE | 2.2 | 2.2 | 3.4 | 2.2 | 5.9 | 1.1 | 0.4 | 2.1 |
| HER OLEFINS | 11.9 | 102.2 | 16.9 | 14.7 | 96.0 | 28.5 | 1.8 | 17.6 |
| AROM TICS | | | | | | | | |
| BENZ | | | | | | | | |
| TOLU E | 11.0 | 9.5 | 16.6 | 11.3 | 18.2 | 5.0 | 5.4 | 17.4 |
| ETHY E | 28.3 | 25.8 | 48.2 | 29.6 | 155.6 | 13.6 | 12.7 | 44.4 |
| m&p- ENZENE | 4.3 | 4.4 | 7.4 | 5.6 | 14.0 | 4.2 | 1.9 | 7.4 |
| o-XY LENE | 15.8 | 15.1 | 24.2 | 16.3 | 47.4 | 13.2 | 6.6 | 24.1 |
| n-PR NE | 6.7 | 5.5 | 10.8 | 7.8 | 15.3 | 4.8 | 3.3 | 10.4 |
| m-ET YLBENZENE | 1.2 | 2.2 | 1.8 | 1.7 | 4.5 | 1.6 | 0.4 | 2.2 |
| p-ET LTOLUENE | 5.1 | 7.0 | 7.8 | 5.2 | 11.0 | 5.3 | 2.0 | 7.5 |
| 1,3, LTOLUENE | 2.8 | 4.1 | 4.4 | 2.8 | 6.6 | 2.8 | 0.9 | 4.2 |
| o-ET TRIMETHYLBENZENE | 3.3 | 2.3 | 5.2 | 3.4 | 7.1 | 2.7 | 1.5 | 4.8 |
| 1,2, LTOLUENE | 2.5 | 3.5 | 4.3 | 2.5 | 6.3 | 2.4 | 1.0 | 3.6 |
| n-DE TRIMETHYLBENZENE | 11.5 | 9.0 | 16.8 | 11.7 | 17.2 | 7.2 | 5.4 | 15.4 |
| 1,4- NE | * | 10.0 | 2.7 | 2.5 | 7.9 | 3.8 | 0.6 | 2.4 |
| 1,2- ETHYLBENZENE | 2.5 | 3.5 | 3.7 | 3.0 | 5.6 | 1.8 | 0.9 | 3.0 |
| SUM METHYL-3-ETHYLBENZENE | 2.1 | 2.8 | 3.9 | 2.8 | 4.1 | 1.1 | 0.9 | 2.6 |
| HER AROMATICS | 22.0 | 93.5 | 32.9 | 36.2 | 71.9 | 30.1 | 12.7 | 29.9 |
| SUMM RY | | | | | | | | |
| ACET | | | | | | | | |
| SUM ENE | 18.0 | 20.3 | 19.7 | 24.2 | 29.9 | 6.7 | 7.1 | 24.0 |
| SUM KNOWNS | 3.1 | * | 1.8 | 1.5 | * | * | 1.4 | 2.6 |
| SUM ARAFFINS | 214.5 | 291.3 | 344.8 | 221.5 | 572.6 | 114.4 | 90.7 | 321.4 |
| SUM EFINS | 62.4 | 160.4 | 94.1 | 77.8 | 209.4 | 55.7 | 19.4 | 91.3 |
| SUM OMATICS | 119.8 | 199.0 | 191.5 | 142.9 | 393.4 | 100.1 | 56.8 | 180.0 |
| DROCARBONS | 417.9 | 671.0 | 652.1 | 468.1 | 1205.5 | 277.0 | 175.6 | 619.4 |

## TABLE A- 2b. Hydrocarbon concentration data for ATLANTA, GA

|  | ID Number and Sample Date |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Compund | 1624<br>84/08/07 | 1739<br>86/07/16 | 1753<br>84/08/13 | 1810<br>86/07/21 | 2124<br>86/08/06 | 2220<br>86/08/12 | 2363<br>84/09/20 | 2401<br>86/08/21 |
| PARAFINS |  |  |  |  |  |  |  |  |
| ETHAE | 8.4 | 13.0 | 17.0 | 14.0 | 14.6 | 6.5 | 42.2 | 7.0 |
| PROPNE | 11.1 | 12.6 | 11.8 | 13.9 | 17.3 | 4.8 | 45.7 | 5.1 |
| ISOBTANE | 5.3 | 10.7 | 9.3 | 11.9 | 13.9 | 5.6 | 61.0 | 3.3 |
| n-BUANE | 18.3 | 39.2 | 37.8 | 46.7 | 52.7 | 19.3 | 183.8 | 9.9 |
| ISOPNTANE | 23.4 | 35.6 | 50.8 | 46.7 | 55.8 | 24.9 | 199.0 | 13.5 |
| n-PETANE | 10.2 | 13.3 | 22.6 | 18.7 | 21.4 | 11.3 | 88.0 | 7.2 |
| 2,2-IMETHYLBUTANE | 0.8 | 0.3 | 2.1 | 1.0 | 1.7 | 0.7 | 9.6 | 0.2 |
| CYCLPENTANE | 0.7 | 2.4 | 2.0 | 4.6 | 3.0 | 0.9 | 7.4 | 0.6 |
| 2,3-IMETHYLBUTANE | 2.3 | 3.5 | 5.6 | 4.5 | 5.3 | 2.2 | 48.7 | 1.2 |
| 2-MEHYLPENTANE | 9.4 | 9.6 | 22.0 | 13.2 | 16.5 | 7.7 | 143.3 | 4.6 |
| 3-MEHYLPENTANE | 6.8 | 11.6 | 14.7 | 11.9 | 11.1 | 5.7 | 158.1 | 3.9 |
| n-HEANE,2-ETHYL-1-BUTENE | 8.2 | 6.8 | 14.7 | 7.7 | 10.0 | 4.4 | 80.7 | 2.7 |
| METHLCYCLOPENTANE | 4.0 | 3.8 | 8.2 | 5.0 | 6.3 | 2.9 | 47.0 | 1.8 |
| 2,4-IMETHYLPENTANE | 1.9 | 2.1 | 4.6 | 2.6 | 3.1 | 1.4 | 20.9 | 0.8 |
| CYCLHEXANE | 0.7 | 0.7 | 1.7 | 1.0 | 1.1 | 1.0 | 7.5 | * |
| 2-MEHYLHEXANE | 3.0 | 6.0 | 7.7 | 8.1 | 10.1 | * | 27.2 | * |
| 2,3-IMETHYLPENTANE | 2.6 | * | 7.6 | * | * | 4.4 | 21.5 | 2.9 |
| 3-MEHYLHEXANE | 3.4 | 3.7 | 10.6 | 4.7 | 5.9 | 2.7 | 27.8 | 1.8 |
| 2,2,-TRIMETHYLPENTANE | 5.7 | 6.8 | 14.5 | 8.9 | 10.0 | 5.4 | 40.9 | 3.0 |
| n-HETANE | 2.8 | 4.0 | 6.7 | 3.3 | 4.4 | 1.6 | 22.6 | 1.3 |
| METHLCYCLOHEXANE | 1.7 | 2.1 | 3.4 | 2.7 | 2.5 | 1.5 | 18.0 | 0.9 |
| 2,5-IMETHYLHEXANE | 1.1 | 1.5 | 2.8 | 2.1 | 2.3 | 0.4 | 9.1 | 0.3 |
| 2,4-IMETHYLHEXANE | 1.4 | 1.4 | 3.3 | 1.8 | 2.3 | 1.0 | 9.8 | 0.6 |
| 2,3,-TRIMETHYLPENTANE | 1.8 | 2.7 | 4.9 | 3.4 | 3.9 | 2.1 | 14.5 | 0.9 |
| 2-MEHYLHEPTANE | 1.0 | 3.1 | 3.5 | 2.6 | 2.4 | 1.3 | 13.3 | 0.7 |
| 3-MEHYLHEPTANE | 1.5 | 1.9 | 3.8 | 1.9 | 2.6 | 1.3 | 15.0 | 0.7 |
| 2,2,-TRIMETHYLHEXANE | 0.6 | 1.3 | 1.8 | 1.6 | 1.6 | 1.3 | 6.2 | 0.3 |
| n-OCANE | 0.9 | 1.9 | 2.0 | 2.3 | 2.0 | 0.9 | 12.2 | 0.7 |
| 2,4-IMETHYLHEPTANE | * | 0.9 | * | 0.9 | 0.6 | 0.5 | 1.4 | 0.7 |
| 4-MEHYLOCTANE | 0.9 | 1.7 | 3.5 | 2.1 | 2.8 | 1.4 | 12.4 | 0.9 |
| 3-MEHYLOCTANE | 0.7 | 1.3 | 1.6 | 1.3 | 1.7 | 0.9 | 6.7 | 0.6 |
| n-NOANE | 1.7 | 1.8 | 1.7 | 1.7 | 2.2 | 0.8 | 12.1 | 1.1 |
| 4-MEHYLNONANE | * | * | * | * | * | * | * | * |
| n-DEANE | 1.6 | 3.6 | 2.6 | 2.8 | 2.5 | 0.9 | 14.8 | 1.7 |
| SUM THER PARAFFINS | 25.7 | 25.6 | 41.8 | 24.0 | 20.8 | 35.7 | 173.4 | 22.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 14.7 | 16.7 | 38.2 | 20.7 | 21.7 | 14.9 | 95.8 | 6.4 |
| PROPYLENE | 4.4 | 4.9 | 14.2 | 7.4 | 7.5 | 4.2 | 34.9 | 2.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.0 | 4.9 | 10.4 | 8.2 | 8.2 | 4.4 | 25.5 | 2.0 |
| 1,3-BUTADIENE | 0.5 | 0.2 | 3.4 | 1.7 | 0.7 | 0.9 | 8.2 | 0.2 |
| t-2-BUTENE | 1.2 | 1.3 | 3.7 | 2.6 | 3.9 | 1.4 | 13.3 | 0.5 |
| c-2-BUTENE | 0.9 | 1.4 | 2.4 | 2.0 | 3.0 | 1.2 | 9.2 | 0.4 |
| 1-PENTENE | 1.3 | 1.2 | 2.6 | 2.0 | 2.4 | 1.0 | 6.3 | 0.2 |
| 2-METHYL-1-BUTENE | 1.4 | 1.9 | 3.5 | 2.9 | 3.9 | 1.6 | 11.7 | 0.5 |
| ISOPRENE | 2.2 | 1.7 | 2.2 | 6.8 | 3.1 | 0.8 | 5.6 | * |
| t-2-PENTENE | 1.7 | 2.1 | 4.3 | 3.1 | 4.3 | 1.5 | 27.2 | 0.2 |
| c-2-PENTENE | 3.2 | 2.6 | 6.0 | 4.0 | 6.6 | 2.6 | 15.1 | * |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.1 | * | 1.3 | 1.1 | 5.4 | 0.3 | 3.4 | 0.1 |
| 2-METHYL-2-PENTENE | 0.5 | 1.0 | 2.1 | 1.2 | 1.8 | 0.7 | 6.3 | 0.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 | 1.4 | 1.0 | 1.6 | 1.3 | 1.6 | 7.6 | 0.3 |
| a-PINENE | 2.4 | 1.8 | 2.2 | 1.4 | 1.4 | 0.8 | 6.4 | * |
| SUM OTHER OLEFINS | 27.2 | 23.4 | 48.0 | 18.5 | 17.1 | 7.3 | 99.6 | 2.1 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 7.8 | 10.1 | 18.6 | 14.3 | 16.4 | 7.8 | 53.5 | 4.4 |
| TOLUENE | 22.6 | 33.1 | 46.1 | 44.5 | 47.7 | 25.6 | 170.3 | 14.3 |
| ETHYLBENZENE | 3.4 | 4.8 | 7.6 | 5.6 | 7.4 | 3.8 | 28.0 | 2.1 |
| m&p-XYLENE | 11.6 | 15.2 | 27.7 | 19.5 | 24.6 | 13.7 | 96.6 | 7.9 |
| o-XYLENE | 4.2 | 7.7 | 10.0 | 7.3 | 9.7 | 5.7 | 34.9 | 3.8 |
| n-PROPYLBENZENE | 1.1 | 1.4 | 2.6 | 1.2 | 2.3 | 0.9 | 9.8 | 0.4 |
| m-ETHYLTOLUENE | 3.9 | 4.6 | 9.2 | 5.9 | 7.9 | 4.5 | 28.4 | 2.4 |
| p-ETHYLTOLUENE | 2.3 | 2.5 | 5.1 | 3.1 | 4.1 | 2.2 | 14.7 | 1.3 |
| 1,3,5-TRIMETHYLBENZENE | 2.1 | 3.9 | 5.1 | 3.6 | 4.8 | 2.6 | 17.3 | 2.2 |
| o-ETHYLTOLUENE | 2.0 | 2.9 | 4.6 | 3.1 | 3.8 | 2.1 | 14.8 | 1.9 |
| 1,2,4-TRIMETHYLBENZENE | 6.3 | 10.0 | 14.4 | 12.4 | 16.5 | 10.1 | 44.8 | 7.4 |
| n-DECANE | 3.6 | 2.5 | 5.8 | 1.8 | 3.4 | 1.7 | 16.9 | 0.9 |
| 1,4-DIETHYLBENZENE | 1.9 | 1.8 | 4.2 | 2.3 | 4.1 | 2.0 | 13.6 | 1.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.8 | 1.9 | 1.2 | 2.2 | 2.8 | 1.3 | 10.7 | 1.3 |
| SUM OTHER AROMATICS | 39.0 | 18.5 | 52.4 | 30.9 | 43.4 | 14.9 | 134.6 | 9.1 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 9.1 | 12.8 | 36.9 | 17.7 | 19.4 | 7.4 | 80.6 | 6.4 |
| SUM UNKNOWNS | 2.3 | 0.8 | 6.7 | 1.4 | 0.8 | 0.9 | 3.7 | 0.5 |
| SUM PARAFFINS | 171.0 | 237.9 | 349.9 | 281.3 | 315.9 | 164.8 | 1603.3 | 104.5 |
| SUM OLEFINS | 67.9 | 67.1 | 146.0 | 85.9 | 92.8 | 45.9 | 376.7 | 15.6 |
| SUM AROMATICS | 114.0 | 121.4 | 215.2 | 158.6 | 199.4 | 99.5 | 689.6 | 61.4 |
| SUM HYDROCARBONS | 364.5 | 440.2 | 755.0 | 545.1 | 628.5 | 318.6 | 2754.3 | 188.6 |

# TABLE A- 2c. Hydrocarbon concentration data for ATLANTA, GA

| Compound | ID Number and Sample Date<br>2468<br>84/09/27 | 2765RA0<br>86/09/12 | 2867<br>86/09/18 | 2922RA0<br>86/09/22 | 2923<br>86/09/23 |
|---|---|---|---|---|---|
| PARAFFINS | | | | | |
| ETHANE | 11.9 | 2.4 | 7.0 | 17.3 | 43.5 |
| PROPANE | 12.5 | 6.6 | 5.7 | 13.6 | 31.7 |
| ISOBUTANE | 4.1 | 5.7 | 3.0 | 11.8 | 25.0 |
| n-BUTANE | 12.3 | 17.4 | 9.6 | 39.1 | 83.7 |
| ISOPENTANE | 12.1 | 23.7 | 10.4 | 43.5 | 98.2 |
| n-PENTANE | 5.9 | 9.9 | 4.5 | 22.6 | 42.7 |
| 2,2-DIMETHYLBUTANE | 0.6 | 0.6 | * | 1.0 | 3.1 |
| CYCLOPENTANE | 0.4 | 0.9 | * | 1.7 | 4.1 |
| 2,3-DIMETHYLBUTANE | 1.1 | 2.5 | 1.0 | 4.1 | 8.9 |
| 2-METHYLPENTANE | 4.3 | 8.5 | 3.4 | 14.3 | 29.5 |
| 3-METHYLPENTANE | * | 6.0 | 2.1 | 9.9 | 19.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 3.0 | 16.0 | 2.1 | 8.6 | 17.2 |
| METHYLCYCLOPENTANE | 1.6 | 4.0 | 1.3 | 5.6 | 11.6 |
| 2,4-DIMETHYLPENTANE | 0.8 | 1.8 | 0.7 | 3.1 | 6.0 |
| CYCLOHEXANE | 0.5 | 3.5 | * | 0.9 | 2.0 |
| 2-METHYLHEXANE | 1.5 | 5.8 | * | 4.8 | 10.3 |
| 2,3-DIMETHYLPENTANE | 0.9 | * | 2.2 | 5.2 | 9.1 |
| 3-METHYLHEXANE | 3.6 | 3.4 | 2.8 | 5.2 | 10.6 |
| 2,2,4-TRIMETHYLPENTANE | 2.5 | 5.8 | 2.5 | 9.9 | 18.7 |
| n-HEPTANE | 1.3 | 2.2 | 0.7 | 4.0 | 7.4 |
| METHYLCYCLOHEXANE | 1.3 | 1.9 | 0.6 | 2.6 | 5.1 |
| 2,5-DIMETHYLHEXANE | 0.5 | 0.4 | * | 1.9 | 3.6 |
| 2,4-DIMETHYLHEXANE | 0.6 | 1.3 | 0.5 | 2.1 | 3.9 |
| 2,3,4-TRIMETHYLPENTANE | 0.7 | 2.3 | 0.8 | 4.1 | 7.1 |
| 2-METHYLHEPTANE | 0.8 | 1.8 | * | 2.4 | 4.6 |
| 3-METHYLHEPTANE | 1.2 | 1.5 | 0.6 | 2.2 | 5.2 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | 1.4 | 1.4 | 1.5 | 2.8 |
| n-OCTANE | * | 1.7 | 0.7 | 1.8 | 3.5 |
| 2,4-DIMETHYLHEPTANE | 1.2 | 0.5 | 0.6 | 0.8 | 1.2 |
| 4-METHYLOCTANE | 0.8 | 1.9 | 0.8 | 1.9 | 4.2 |
| 3-METHYLOCTANE | 0.5 | 0.9 | 0.5 | 1.6 | 3.1 |
| n-NONANE | 1.0 | 1.4 | 0.8 | 2.4 | 5.6 |
| 4-METHYLNONANE | * | * | * | * | * |
| n-DECANE | 1.2 | 2.1 | 1.8 | 3.8 | 10.0 |
| SUM OTHER PARAFFINS | 34.6 | 14.6 | 7.7 | 33.7 | 65.2 |

| | | | | | |
|---|---|---|---|---|---|
| OLEFINS | | | | | |
| ETHYLENE | 6.8 | 15.7 | 9.0 | 26.5 | 39.0 |
| PROPENE | 2.4 | 5.8 | 2.0 | 7.2 | 15.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 1.6 | 4.5 | 1.7 | 6.4 | 12.4 |
| 1,3-BUTADIENE | 0.8 | 1.3 | 0.3 | 1.5 | 3.4 |
| t-2-BUTENE | 0.5 | 1.4 | 0.4 | 2.6 | 5.6 |
| c-2-BUTENE | 0.4 | 1.1 | 0.3 | 1.9 | 4.1 |
| 1-PENTENE | 0.4 | 1.0 | 0.2 | 1.8 | 3.8 |
| 2-METHYL-1-BUTENE | 0.5 | 1.6 | 0.3 | 3.0 | 6.2 |
| ISOPRENE | 0.3 | 1.3 | * | 3.1 | 2.6 |
| t-2-PENTENE | 0.6 | 2.0 | 0.1 | 3.2 | 6.7 |
| c-2-PENTENE | * | 4.8 | * | 4.2 | 8.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | * | 0.5 | * |
| 2-METHYL-2-PENTENE | 0.2 | 0.7 | 0.1 | 1.3 | 2.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.7 | 1.3 | 0.5 | 1.1 | 2.2 |
| a-PINENE | 2.6 | * | * | 9.3 | 2.2 |
| SUM OTHER OLEFINS | 16.2 | 9.8 | 1.8 | 20.5 | 37.2 |
| AROMATICS | | | | | |
| BENZENE | 3.7 | 9.7 | 4.0 | 14.4 | 27.8 |
| TOLUENE | 11.4 | 27.4 | 13.0 | 52.0 | 84.9 |
| ETHYLBENZENE | 2.1 | 4.1 | 1.7 | 7.0 | 12.9 |
| m&p-XYLENE | 7.5 | 15.4 | 6.3 | 24.4 | 44.5 |
| o-XYLENE | 2.4 | 5.0 | 2.9 | 10.2 | 19.1 |
| n-PROPYLBENZENE | 0.6 | 1.0 | 0.4 | 2.2 | 3.8 |
| m-ETHYLTOLUENE | 2.0 | 4.6 | 2.1 | 8.5 | 15.1 |
| p-ETHYLTOLUENE | 1.1 | 2.3 | 1.1 | 4.2 | 7.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.5 | 2.5 | 1.3 | 5.1 | 9.8 |
| o-ETHYLTOLUENE | 2.0 | 2.1 | 1.2 | 3.9 | 7.5 |
| 1,2,4-TRIMETHYLBENZENE | 4.3 | 9.5 | 5.9 | 14.5 | 26.8 |
| n-DECANE | 0.9 | 1.5 | 0.7 | 3.6 | 8.9 |
| 1,4-DIETHYLBENZENE | 1.4 | 1.9 | 0.9 | 4.0 | 6.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.1 | 1.3 | 0.8 | 2.5 | 5.0 |
| SUM OTHER AROMATICS | 36.5 | 11.5 | 6.8 | 80.4 | 77.2 |
| SUMMARY | | | | | |
| ACETYLENE | 5.8 | 12.3 | 2.1 | 12.2 | 41.3 |
| SUM UNKNOWNS | 4.1 | 1.5 | 1.0 | 4.4 | 3.0 |
| SUM PARAFFINS | 127.0 | 161.6 | 77.0 | 290.6 | 609.3 |
| SUM OLEFINS | 34.5 | 52.9 | 17.1 | 94.8 | 152.3 |
| SUM AROMATICS | 80.0 | 100.6 | 49.7 | 237.6 | 358.2 |
| SUM HYDROCARBONS | 251.7 | 329.1 | 147.1 | 639.8 | 1164.4 |

TABLE A- 3a. Hydrocarbon concentration data for BIRMINGHAM, AL

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1192<br>86/06/13 | 1234<br>86/06/16 | 1249<br>84/07/13 | 1315<br>84/07/18 | 1383<br>86/06/25 | 1495<br>86/07/01 | 1523<br>84/07/31 | 1610<br>84/08/06 |
| PARAFFINS | | | | | | | | |
| ETHANE | 30.5 | 77.5 | 12.4 | 10.6 | 97.2 | 14.4 | 6.7 | 13.9 |
| PROPANE | 42.3 | 64.6 | 12.2 | 14.2 | 391.1 | 12.3 | 7.6 | 8.7 |
| ISOBUTANE | 32.2 | 47.2 | 12.2 | 5.3 | 432.5 | 13.7 | 4.5 | 12.5 |
| n-BUTANE | 130.2 | 190.3 | 36.8 | 19.2 | 448.2 | 36.0 | 20.4 | 47.8 |
| ISOPENTANE | 101.2 | 160.0 | 37.5 | 24.9 | 392.7 | 26.4 | 27.1 | 46.9 |
| n-PENTANE | 40.4 | 67.9 | 16.9 | 12.5 | 450.3 | 11.4 | 17.7 | 19.4 |
| 2,2-DIMETHYLBUTANE | 3.0 | 5.6 | * | * | 94.6 | 0.8 | 1.3 | * |
| CYCLOPENTANE | 4.4 | 6.5 | 1.3 | 1.0 | 103.8 | 1.1 | 1.1 | 0.1 |
| 2,3-DIMETHYLBUTANE | 8.6 | 14.8 | 2.7 | 2.2 | 177.1 | 2.6 | 3.9 | 13.0 |
| 2-METHYLPENTANE | 28.5 | 52.1 | 11.7 | 10.0 | 647.4 | 8.1 | 13.9 | 2.7 |
| 3-METHYLPENTANE | 19.7 | 49.1 | 10.4 | 12.9 | 350.9 | 5.5 | 12.0 | 0.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 16.7 | 32.0 | 7.1 | 6.4 | 287.4 | 4.7 | 9.0 | 0.8 |
| METHYLCYCLOPENTANE | 11.2 | 20.3 | 4.1 | 3.6 | 147.2 | 3.2 | 5.3 | * |
| 2,4-DIMETHYLPENTANE | 6.5 | 12.0 | 1.8 | 1.8 | 71.9 | 1.6 | 2.5 | 4.8 |
| CYCLOHEXANE | 2.1 | 5.3 | 1.1 | 0.8 | 22.7 | 0.5 | 1.2 | 0.9 |
| 2-METHYLHEXANE | 21.2 | 19.7 | 3.7 | 3.6 | 173.0 | 5.5 | 4.1 | 4.0 |
| 2,3-DIMETHYLPENTANE | 16.9 | 19.0 | 3.8 | 3.8 | * | * | 2.5 | 3.5 |
| 3-METHYLHEXANE | 12.3 | 19.9 | 15.3 | 19.3 | 85.1 | 3.0 | 7.3 | 5.8 |
| 2,2,4-TRIMETHYLPENTANE | 21.5 | 36.0 | 4.5 | 6.1 | 105.9 | 5.2 | 6.8 | 6.0 |
| n-HEPTANE | 8.1 | 17.2 | 3.0 | 3.8 | 61.0 | 1.8 | 4.0 | 3.1 |
| METHYLCYCLOHEXANE | 5.8 | 10.7 | 2.7 | 2.4 | 27.7 | 1.5 | 2.6 | 2.9 |
| 2,5-DIMETHYLHEXANE | 3.7 | 6.6 | 1.4 | 2.0 | 17.0 | 0.4 | 1.4 | 1.2 |
| 2,4-DIMETHYLHEXANE | 4.2 | 7.6 | 2.6 | 3.0 | 18.8 | 1.0 | 1.6 | 1.5 |
| 2,3,4-TRIMETHYLPENTANE | 7.5 | 12.4 | 1.0 | 1.3 | 29.5 | 1.6 | 1.8 | 1.6 |
| 2-METHYLHEPTANE | 6.5 | 9.8 | 2.5 | 1.8 | 23.7 | 1.6 | 2.2 | 2.1 |
| 3-METHYLHEPTANE | 6.9 | 10.6 | 1.7 | 1.9 | 19.4 | 1.1 | 2.0 | 1.9 |
| 2,2,5-TRIMETHYLHEXANE | 2.8 | 4.7 | 0.4 | 0.4 | 7.8 | 1.5 | 0.7 | 0.5 |
| n-OCTANE | 8.5 | 16.6 | 1.3 | 2.2 | 13.7 | 1.3 | 1.9 | 2.0 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | 5.3 | 0.5 | * | * |
| 4-METHYLOCTANE | 8.0 | 9.5 | * | * | 9.8 | 1.8 | 0.4 | 2.0 |
| 3-METHYLOCTANE | 7.4 | 7.0 | 1.0 | 1.2 | 6.4 | 1.1 | 1.0 | 0.7 |
| n-NONANE | 12.1 | 13.4 | 2.1 | 2.4 | 8.5 | 1.3 | 2.2 | 1.8 |
| 4-METHYLNONANE | 3.2 | * | * | * | * | * | * | * |
| n-DECANE | 15.7 | 13.3 | 3.3 | 2.3 | 10.8 | 1.1 | 3.0 | 1.5 |
| SUM OTHER PARAFFINS | 84.7 | 100.9 | 878.2 | 381.0 | 217.2 | 10.8 | 85.8 | 58.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 34.1 | 71.6 | 15.7 | 13.8 | 69.9 | 15.8 | 19.8 | 25.4 |
| PROPENE | 16.3 | 28.5 | 5.6 | 5.6 | 111.3 | 5.3 | 6.8 | 6.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 14.9 | 29.6 | 7.1 | 5.3 | 364.6 | 5.2 | 5.0 | 5.5 |
| 1,3-BUTADIENE | 3.4 | 6.0 | 1.1 | 1.2 | 9.7 | 0.8 | 1.4 | 1.0 |
| t-2-BUTENE | 6.8 | 11.3 | 2.4 | 1.8 | 377.3 | 1.4 | 2.0 | 2.9 |
| c-2-BUTENE | 5.2 | 7.9 | 1.8 | 1.3 | 295.6 | 1.0 | 1.3 | 2.2 |
| 1-PENTENE | 3.5 | 7.0 | 1.1 | 1.1 | 153.5 | 0.9 | 1.0 | 1.5 |
| 2-METHYL-1-BUTENE | 9.1 | 14.0 | 2.0 | 1.6 | 242.3 | 1.2 | 1.7 | 2.5 |
| ISOPRENE | 5.7 | 10.7 | 2.0 | 2.4 | 17.3 | 2.5 | 1.9 | 4.7 |
| t-2-PENTENE | 7.0 | 11.9 | 7.6 | 2.1 | 290.7 | 1.6 | 2.2 | 2.8 |
| c-2-PENTENE | 9.0 | 1.4 | 0.8 | 4.0 | 339.3 | * | 2.1 | 0.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 2.9 | 3.5 | * | 1.2 | 61.5 | 0.2 | 0.3 | * |
| 2-METHYL-2-PENTENE | 3.2 | 6.2 | 0.6 | 0.7 | 56.0 | 0.5 | 0.9 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.9 | 6.3 | 190.0 | 52.8 | 10.2 | 0.7 | 49.6 | * |
| a-PINENE | 3.4 | 8.6 | 4.1 | 2.2 | 5.3 | 1.0 | 1.4 | 2.3 |
| SUM OTHER OLEFINS | 46.0 | 100.5 | 98.2 | 95.1 | 522.4 | 7.8 | 44.1 | 62.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 36.7 | 71.7 | 7.9 | 7.8 | 273.2 | 11.3 | 8.9 | 13.6 |
| TOLUENE | 69.8 | 128.2 | 19.7 | 19.3 | 296.5 | 19.8 | 31.2 | 18.7 |
| ETHYLBENZENE | 12.7 | 29.7 | 3.6 | 3.8 | 31.7 | 3.2 | 4.6 | 3.2 |
| m/p-XYLENE | 44.9 | 87.2 | 11.6 | 13.0 | 101.2 | 10.9 | 15.7 | 11.0 |
| o-XYLENE | 20.2 | 33.0 | 4.6 | 4.9 | 37.2 | 4.7 | 5.9 | 4.4 |
| n-PROPYLBENZENE | 3.5 | 8.4 | 2.0 | 1.3 | 5.7 | 0.7 | 1.8 | 1.0 |
| m-ETHYLTOLUENE | 12.9 | 22.0 | 4.3 | 5.1 | 19.7 | 3.2 | 5.7 | 3.9 |
| p-ETHYLTOLUENE | 8.0 | 12.0 | 5.1 | 4.4 | 10.1 | 1.7 | 3.5 | 2.6 |
| 1,3,5-TRIMETHYLBENZENE | 7.7 | 14.9 | 1.6 | 2.3 | 12.8 | 2.0 | 3.3 | 2.1 |
| o-ETHYLTOLUENE | 8.0 | 12.0 | 3.3 | 3.0 | 9.5 | 1.8 | 3.0 | 2.1 |
| 1,2,4-TRIMETHYLBENZENE | 30.7 | 46.7 | 8.5 | 7.6 | 41.6 | 10.0 | 9.6 | 6.5 |
| n-DECANE | * | 10.9 | 9.7 | 7.4 | 9.8 | 1.0 | 4.5 | 2.2 |
| 1,4-DIETHYLBENZENE | 7.2 | 10.7 | 3.2 | 2.6 | 8.5 | 1.5 | 3.2 | 2.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 7.0 | 8.4 | 4.8 | 1.8 | 8.1 | 1.4 | 3.8 | 2.1 |
| SUM OTHER AROMATICS | 78.6 | 127.1 | 67.0 | 57.7 | 123.0 | 11.6 | 61.0 | 32.8 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 24.1 | 81.6 | 9.7 | 11.2 | 49.8 | 9.7 | 13.0 | 8.6 |
| SUM UNKNOWNS | 7.5 | 9.0 | 16.5 | 0.9 | 7.1 | 1.3 | 6.4 | 17.3 |
| SUM PARAFFINS | 735.8 | 1141.7 | 1098.0 | 565.3 | 4956.5 | 185.8 | 267.1 | 273.9 |
| SUM OLEFINS | 175.1 | 325.8 | 340.6 | 192.8 | 2927.2 | 46.6 | 142.5 | 120.4 |
| SUM AROMATICS | 348.3 | 623.4 | 157.7 | 142.7 | 989.3 | 85.5 | 166.5 | 109.2 |
| SUM HYDROCARBONS | 1290.9 | 2181.6 | 1622.7 | 913.1 | 8930.1 | 329.0 | 595.6 | 529.5 |

TABLE A- 3b. Hydrocarbon concentration data for BIRMINGHAM, AL

| Compound | ID Number and Sample Date<br>1630<br>86/07/10 | 1702<br>86/07/15 | 1878<br>86/07/24 | 1943<br>86/07/28 | 2077<br>86/08/04 | 2239<br>86/08/13 | 2241<br>84/09/13 | 2281<br>84/09/17 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 14.3 | 13.6 | 21.6 | 32.0 | 56.1 | 9.3 | 57.0 | 10.9 |
| PROPANE | 10.2 | 15.6 | 21.6 | 26.2 | 47.9 | 14.2 | 71.6 | 11.8 |
| ISOBUTANE | 6.1 | 7.8 | 13.9 | 18.7 | 34.4 | 4.8 | 21.4 | 4.0 |
| n-BUTANE | 19.1 | 26.4 | 51.4 | 65.9 | 131.2 | 18.7 | 89.6 | 15.6 |
| ISOPENTANE | 21.5 | 25.6 | 53.6 | 73.6 | 112.6 | 23.8 | 107.2 | 21.5 |
| n-PENTANE | 8.3 | 11.4 | 26.1 | 32.0 | 47.0 | 10.9 | 48.7 | 19.3 |
| 2,2-DIMETHYLBUTANE | 0.5 | 0.8 | 1.6 | 2.2 | 3.4 | 0.7 | 4.0 | 0.9 |
| CYCLOPENTANE | 2.1 | 1.0 | 2.9 | 3.9 | 5.0 | 1.0 | 4.4 | 1.0 |
| 2,3-DIMETHYLBUTANE | 2.0 | 3.2 | 5.0 | 7.1 | 9.2 | 2.7 | 10.9 | 3.5 |
| 2-METHYLPENTANE | 6.4 | 8.1 | 17.9 | 25.0 | 31.3 | 8.8 | 41.9 | 13.5 |
| 3-METHYLPENTANE | 5.3 | 6.2 | 11.6 | 15.8 | 20.3 | 6.3 | 34.5 | 15.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.1 | 4.8 | 11.1 | 13.6 | 22.8 | 5.1 | 63.5 | 14.3 |
| METHYLCYCLOPENTANE | 2.8 | 3.2 | 7.3 | 10.1 | 12.3 | 3.6 | 24.3 | 5.1 |
| 2,4-DIMETHYLPENTANE | 1.3 | 1.6 | 3.2 | 4.6 | 5.1 | 1.7 | 7.4 | 2.2 |
| CYCLOHEXANE | 0.5 | 0.5 | 1.4 | 1.9 | 6.8 | 0.6 | 8.5 | 1.5 |
| 2-METHYLHEXANE | 4.6 | 5.4 | 15.1 | 16.3 | 20.4 | 5.8 | 14.8 | 3.1 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | 12.0 | 2.5 |
| 3-METHYLHEXANE | 2.9 | 3.6 | 7.2 | 10.5 | 10.6 | 3.5 | 16.3 | 4.8 |
| 2,2,4-TRIMETHYLPENTANE | 3.9 | 4.9 | 10.3 | 14.4 | 17.1 | 5.2 | 22.6 | 5.2 |
| n-HEPTANE | 2.6 | 3.1 | 6.5 | 8.6 | 8.9 | 2.3 | 13.6 | 2.4 |
| METHYLCYCLOHEXANE | 1.4 | 1.4 | 3.4 | 5.0 | 6.3 | 1.9 | 8.6 | 3.0 |
| 2,5-DIMETHYLHEXANE | 0.7 | 0.5 | 2.3 | 3.3 | 3.4 | 1.7 | 4.8 | 1.1 |
| 2,4-DIMETHYLHEXANE | 0.9 | 1.0 | 2.4 | 3.5 | 3.5 | 1.2 | 5.3 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 1.7 | 4.2 | 5.8 | 5.5 | 1.9 | 7.8 | 1.6 |
| 2-METHYLHEPTANE | 2.2 | 1.5 | 3.2 | 4.7 | 4.6 | 2.6 | 6.5 | 2.3 |
| 3-METHYLHEPTANE | 1.4 | 1.3 | 3.1 | 5.2 | 4.9 | 2.1 | 7.0 | 2.0 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 0.9 | 1.4 | 2.4 | 1.8 | 1.4 | 2.9 | 0.7 |
| n-OCTANE | 1.7 | 1.3 | 3.6 | 5.1 | 5.9 | 2.6 | 6.4 | 2.2 |
| 2,4-DIMETHYLHEPTANE | 1.0 | 0.8 | 1.6 | 2.4 | 2.7 | 2.4 | 0.5 | 0.1 |
| 4-METHYLOCTANE | 1.7 | 1.7 | 3.0 | 3.5 | 4.5 | 2.2 | 5.9 | 1.8 |
| 3-METHYLOCTANE | 1.5 | 1.2 | 2.6 | 2.9 | 3.4 | 1.5 | 3.4 | 1.3 |
| n-NONANE | 1.7 | 1.2 | 3.7 | 3.8 | 5.2 | 2.3 | 6.5 | 2.7 |
| 4-METHYLNONANE | * | * | * | * | * | 1.7 | * | * |
| n-DECANE | 1.7 | 2.2 | 4.1 | 3.8 | 4.1 | 2.5 | 9.3 | 4.2 |
| SUM OTHER PARAFFINS | 38.3 | 13.8 | 26.2 | 37.7 | 37.5 | 21.9 | 91.6 | 61.7 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 14.8 | 11.7 | 29.1 | 34.0 | 40.0 | 18.5 | 78.9 | 19.1 |
| PROPENE | 4.0 | 4.4 | 10.0 | 11.8 | 13.7 | 8.3 | 23.6 | 5.8 |
| 2-METHYLPROPYLENE,BUTENE-1 | 3.2 | 4.1 | 9.2 | 11.4 | 17.2 | 6.0 | 14.7 | 4.3 |
| 1,3-BUTADIENE | 0.1 | 0.8 | 0.8 | 0.9 | 2.5 | 1.5 | 5.4 | 0.9 |
| t-2-BUTENE | 0.6 | 1.4 | 1.9 | 3.1 | 9.9 | 1.7 | 8.0 | 0.8 |
| c-2-BUTENE | 0.6 | 1.0 | 1.9 | 3.0 | 7.7 | 1.2 | 5.5 | 0.6 |
| 1-PENTENE | 0.3 | 0.9 | 2.0 | 0.8 | 4.9 | 1.0 | 5.6 | 1.3 |
| 2-METHYL-1-BUTENE | 6.5 | 1.2 | 1.8 | 9.9 | 7.4 | 1.5 | 6.7 | 1.6 |
| ISOPRENE | 4.3 | 3.5 | 1.8 | 9.5 | 5.2 | 2.1 | 4.6 | 0.8 |
| t-2-PENTENE | 0.2 | 2.0 | 2.8 | 3.6 | 8.7 | 1.5 | 8.3 | 1.4 |
| c-2-PENTENE | 1.4 | 1.9 | 3.8 | 5.5 | 10.7 | 2.5 | 8.4 | 2.1 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | 0.2 | 1.7 | 2.6 | 2.2 | 0.4 | 2.0 | 0.2 |
| 2-METHYL-2-PENTENE | 0.4 | 0.4 | 1.4 | 2.6 | 3.8 | 0.9 | 3.8 | 0.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 | 0.9 | 1.3 | 1.2 | 1.6 | 1.3 | 4.1 | 4.9 |
| a-PINENE | 1.5 | 1.8 | * | 2.3 | 15.3 | 1.8 | 4.3 | 4.1 |
| SUM OTHER OLEFINS | 13.1 | 5.6 | 18.3 | 24.0 | 39.5 | 11.3 | 88.1 | 42.3 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 10.7 | 10.0 | 20.0 | 24.2 | 106.2 | 10.0 | 185.6 | 7.8 |
| TOLUENE | 18.2 | 20.0 | 47.9 | 63.8 | 82.0 | 27.3 | 106.7 | 37.7 |
| ETHYLBENZENE | 3.4 | 4.0 | 8.7 | 12.0 | 12.0 | 6.3 | 32.6 | 5.2 |
| m&p-XYLENE | 10.7 | 12.5 | 29.3 | 40.8 | 43.6 | 21.1 | 107.2 | 17.5 |
| o-XYLENE | 5.2 | 6.4 | 13.0 | 16.6 | 16.4 | 7.6 | 34.4 | 6.0 |
| n-PROPYLBENZENE | 0.6 | 0.7 | 2.5 | 3.5 | 4.3 | 1.0 | 7.7 | 1.1 |
| m-ETHYLTOLUENE | 3.2 | 3.2 | 9.4 | 11.3 | 11.9 | 5.0 | 22.9 | 5.9 |
| p-ETHYLTOLUENE | 1.7 | 1.6 | 5.1 | 5.3 | 6.3 | 2.6 | 16.4 | 3.1 |
| 1,3,5-TRIMETHYLBENZENE | 1.9 | 1.8 | 5.9 | 6.5 | 8.5 | * | 13.7 | 3.2 |
| o-ETHYLTOLUENE | 1.7 | 1.7 | 4.5 | 5.7 | 5.5 | 2.6 | 12.4 | 3.0 |
| 1,2,4-TRIMETHYLBENZENE | 7.2 | 11.1 | 22.2 | 26.5 | 28.0 | 13.6 | 37.0 | 9.0 |
| n-DECANE | 1.6 | 1.6 | 3.6 | 5.6 | 4.6 | * | 11.6 | 5.2 |
| 1,4-DIETHYLBENZENE | 2.1 | 1.8 | 4.8 | 4.8 | 6.8 | 2.0 | 17.2 | 3.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.7 | 1.1 | 3.5 | 3.3 | 3.1 | 2.5 | 5.7 | 4.1 |
| SUM OTHER AROMATICS | 19.7 | 13.9 | 63.7 | 60.8 | 119.9 | 20.7 | 244.2 | 63.2 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 8.4 | 14.5 | 24.7 | 31.0 | 29.6 | 14.6 | 47.0 | 11.3 |
| SUM UNKNOWNS | 1.7 | 2.0 | 2.7 | 2.8 | 1.6 | 2.1 | 7.8 | 0.7 |
| SUM PARAFFINS | 176.8 | 178.5 | 355.7 | 473.1 | 696.9 | 180.4 | 842.1 | 245.5 |
| SUM OLEFINS | 52.4 | 42.5 | 88.3 | 127.0 | 190.9 | 62.1 | 272.8 | 91.7 |
| SUM AROMATICS | 90.4 | 92.2 | 244.8 | 291.1 | 459.8 | 123.1 | 855.8 | 175.7 |
| SUM HYDROCARBONS | 329.9 | 329.9 | 716.4 | 925.1 | 1378.9 | 382.4 | 2025.6 | 525.0 |

## TABLE A- 3c. Hydrocarbon concentration data for BIRMINGHAM, AL

| | ID Number and Sample Date | | | |
|---|---|---|---|---|
| Compound | 2428<br>86/08/22 | 2536<br>86/08/28 | 2611<br>86/09/03 | 2945<br>86/09/24 |
| PARAFFINS | | | | |
| ETHANE | 9.1 | 11.3 | 8.1 | 17.2 |
| PROPANE | 8.3 | 10.0 | 11.3 | 16.0 |
| ISOBUTANE | 5.0 | 4.8 | 20.5 | 29.6 |
| n-BUTANE | 17.2 | 13.2 | 82.8 | 90.9 |
| ISOPENTANE | 22.2 | 15.1 | 54.2 | 71.6 |
| n-PENTANE | 4.9 | 6.5 | 18.1 | 25.9 |
| 2,2-DIMETHYLBUTANE | 0.6 | 0.4 | 1.3 | 2.2 |
| CYCLOPENTANE | 0.8 | 0.3 | 1.3 | 2.6 |
| 2,3-DIMETHYLBUTANE | 2.3 | 1.2 | 4.9 | 5.8 |
| 2-METHYLPENTANE | 7.3 | 5.1 | 13.0 | 18.3 |
| 3-METHYLPENTANE | 5.5 | 4.0 | 8.9 | 11.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.3 | 2.9 | 7.1 | 10.0 |
| METHYLCYCLOPENTANE | 2.9 | 1.8 | 4.6 | 6.6 |
| 2,4-DIMETHYLPENTANE | 1.5 | 1.0 | 3.4 | 3.8 |
| CYCLOHEXANE | 0.4 | 0.3 | 1.2 | 1.2 |
| 2-METHYLHEXANE | 4.6 | * | * | 5.9 |
| 2,3-DIMETHYLPENTANE | * | 2.5 | 11.3 | 9.0 |
| 3-METHYLHEXANE | 2.9 | 2.2 | 4.5 | 6.0 |
| 2,2,4-TRIMETHYLPENTANE | 4.5 | 2.9 | 8.5 | 10.3 |
| n-HEPTANE | 1.8 | 2.1 | 2.6 | 4.4 |
| METHYLCYCLOHEXANE | 1.3 | 1.0 | 1.8 | 4.1 |
| 2,5-DIMETHYLHEXANE | 0.2 | 0.3 | 0.3 | 2.1 |
| 2,4-DIMETHYLHEXANE | 0.9 | 0.6 | 1.4 | 2.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.8 | 1.1 | 3.1 | 3.8 |
| 2-METHYLHEPTANE | 1.6 | 1.1 | 2.8 | 3.1 |
| 3-METHYLHEPTANE | 1.2 | 0.9 | 1.7 | 3.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 3.3 | 1.4 | 1.8 |
| n-OCTANE | 1.1 | 0.9 | 1.9 | 4.0 |
| 2,4-DIMETHYLHEPTANE | 1.2 | 0.4 | 0.6 | 0.9 |
| 4-METHYLOCTANE | 1.4 | 1.4 | 1.8 | 3.8 |
| 3-METHYLOCTANE | 1.0 | 0.8 | 1.2 | 2.6 |
| n-NONANE | 1.0 | 0.8 | 1.1 | 4.9 |
| 4-METHYLNONANE | * | * | * | * |
| n-DECANE | 1.3 | 1.9 | 2.0 | 7.7 |
| SUM OTHER PARAFFINS | 8.4 | 9.4 | 15.1 | 34.6 |

|  |  |  |  |  |
|---|---|---|---|---|
| OLEFINS |  |  |  |  |
| ETHYLENE | 14.7 | 8.8 | 18.6 | 27.1 |
| PROPENE | 5.1 | 2.4 | 6.4 | 10.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 3.9 | 2.2 | 7.1 | 11.3 |
| 1,3-BUTADIENE | 0.2 | * | 0.3 | 1.7 |
| t-2-BUTENE | 0.8 | 0.4 | 2.7 | 4.4 |
| c-2-BUTENE | 0.8 | 0.4 | 2.4 | 3.4 |
| 1-PENTENE | 0.3 | 0.3 | 1.7 | 2.6 |
| 2-METHYL-1-BUTENE | 0.3 | 0.5 | 2.7 | 3.8 |
| ISOPRENE | 1.0 | 0.7 | 1.4 | 2.3 |
| t-2-PENTENE | 0.2 | 1.0 | 3.2 | 3.9 |
| c-2-PENTENE | * | * | 4.9 | 4.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.3 | 0.1 | 0.6 | 0.7 |
| 2-METHYL-2-PENTENE | 0.6 | 0.4 | 1.5 | 1.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 0.3 | 1.5 | 1.4 |
| a-PINENE | 2.6 | * | 4.3 | 0.8 |
| SUM OTHER OLEFINS | 7.8 | 5.1 | 13.9 | 24.1 |
| AROMATICS |  |  |  |  |
| BENZENE | 8.4 | 6.3 | 12.5 | 18.7 |
| TOLUENE | 22.0 | 16.6 | 30.5 | 39.0 |
| ETHYLBENZENE | 3.8 | 2.8 | 4.9 | 6.6 |
| m&p-XYLENE | 14.3 | 10.7 | 18.4 | 24.0 |
| o-XYLENE | 6.0 | 5.0 | 7.9 | 10.1 |
| n-PROPYLBENZENE | 1.1 | 0.5 | 1.1 | 1.8 |
| m-ETHYLTOLUENE | 5.3 | 2.8 | 5.5 | 7.0 |
| p-ETHYLTOLUENE | 2.5 | 1.4 | 2.7 | 4.0 |
| 1,3,5-TRIMETHYLBENZENE | 2.9 | 1.7 | 3.3 | 5.4 |
| o-ETHYLTOLUENE | 2.5 | 1.5 | 2.3 | 4.5 |
| 1,2,4-TRIMETHYLBENZENE | 13.7 | 11.3 | 15.8 | 19.5 |
| n-DECANE | 1.7 | 1.2 | 1.6 | 2.5 |
| 1,4-DIETHYLBENZENE | 1.9 | 1.4 | 2.4 | 2.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.5 | 1.0 | 1.6 | 2.7 |
| SUM OTHER AROMATICS | 27.3 | 15.1 | 34.6 | 39.8 |
| SUMMARY |  |  |  |  |
| ACETYLENE | 12.1 | 7.5 | 15.8 | 18.6 |
| SUM UNKNOWNS | 2.2 | 1.1 | 4.1 | 3.0 |
| SUM PARAFFINS | 131.1 | 113.1 | 305.4 | 428.8 |
| SUM OLEFINS | 40.3 | 23.2 | 73.9 | 104.1 |
| SUM AROMATICS | 115.6 | 79.9 | 145.6 | 189.2 |
| SUM HYDROCARBONS | 301.5 | 225.0 | 544.9 | 743.9 |

## TABLE A- 4a. Hydrocarbon concentration data for BALTIMORE, MD

| Compound | ID Number and Sample Date<br>1161<br>86/06/11 | 1231<br>86/06/16 | 1415<br>86/06/26 | 1494<br>86/07/01 | 1677<br>86/07/11 | 1790<br>86/07/18 | 1857<br>86/07/23 | 1937<br>86/07/28 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 7.8 | 10.3 | 30.4 | 17.7 | 27.5 | 24.6 | 31.6 | 41.5 |
| PROPANE | 6.9 | 7.3 | 17.9 | 7.8 | 23.9 | 15.6 | 21.0 | 27.0 |
| ISOBUTANE | 11.6 | 6.1 | 13.1 | 7.5 | 18.3 | 16.2 | 17.5 | 17.3 |
| n-BUTANE | 42.2 | 22.8 | 51.1 | 28.2 | 57.7 | 53.3 | 53.4 | 49.7 |
| ISOPENTANE | 38.0 | 23.4 | 48.8 | 34.1 | 63.3 | 53.8 | 61.5 | 50.3 |
| n-PENTANE | 16.7 | 9.6 | 23.2 | 14.7 | 27.2 | 21.4 | 25.6 | 23.7 |
| 2,2-DIMETHYLBUTANE | 1.4 | 0.7 | 1.5 | 1.4 | 2.0 | 1.8 | 2.4 | 1.5 |
| CYCLOPENTANE | 1.2 | 0.7 | 2.0 | 1.5 | 2.7 | 2.7 | 2.8 | 2.8 |
| 2,3-DIMETHYLBUTANE | 3.1 | 2.1 | 4.3 | 3.3 | 5.3 | 4.5 | 5.3 | 3.9 |
| 2-METHYLPENTANE | 13.3 | 6.8 | 13.3 | 10.9 | 17.8 | 14.4 | 19.2 | 13.0 |
| 3-METHYLPENTANE | 8.0 | 4.8 | 9.8 | 8.1 | 12.6 | 10.5 | 12.9 | 10.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 10.3 | 4.2 | 8.1 | 6.8 | 11.0 | 9.1 | 20.2 | 12.5 |
| METHYLCYCLOPENTANE | 4.8 | 2.7 | 5.5 | 4.4 | 7.1 | 6.0 | 9.7 | 6.1 |
| 2,4-DIMETHYLPENTANE | 1.5 | 1.3 | 2.8 | 2.3 | 3.3 | 2.5 | 3.3 | 2.0 |
| CYCLOHEXANE | 1.1 | 0.5 | 1.5 | 0.9 | 1.5 | 0.9 | 1.7 | 2.7 |
| 2-METHYLHEXANE | 5.5 | 4.1 | 9.6 | 4.2 | 6.9 | 8.5 | 14.7 | 10.7 |
| 2,3-DIMETHYLPENTANE | 2.2 | * | * | 3.3 | * | * | * | * |
| 3-METHYLHEXANE | 3.4 | 2.6 | 5.4 | 4.3 | 6.9 | 5.9 | 7.5 | 5.4 |
| 2,2,4-TRIMETHYLPENTANE | 6.3 | 5.4 | 11.0 | 10.1 | 15.0 | 8.7 | 14.2 | 8.2 |
| n-HEPTANE | 2.7 | 2.0 | 6.0 | 3.5 | 6.7 | 5.3 | 5.4 | 4.3 |
| METHYLCYCLOHEXANE | 2.2 | 1.3 | 2.5 | 1.8 | 3.6 | 2.0 | 3.0 | 2.6 |
| 2,5-DIMETHYLHEXANE | 1.4 | 1.1 | 2.2 | 1.7 | 2.6 | 1.9 | 2.4 | 1.7 |
| 2,4-DIMETHYLHEXANE | 1.3 | 1.0 | 2.3 | 2.0 | 2.8 | 1.8 | 2.7 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 2.2 | 2.1 | 4.6 | 4.0 | 5.1 | 3.5 | 4.8 | 3.4 |
| 2-METHYLHEPTANE | 3.2 | 0.6 | 3.5 | 1.8 | 2.8 | 3.2 | 2.8 | 3.8 |
| 3-METHYLHEPTANE | 3.1 | 1.0 | 2.8 | 2.0 | 2.7 | 2.6 | 2.9 | 2.8 |
| 2,2,5-TRIMETHYLHEXANE | 1.3 | 1.0 | 2.0 | 1.5 | 2.1 | 1.8 | 2.4 | 1.7 |
| n-OCTANE | * | 1.1 | 3.1 | 1.9 | 2.6 | 2.3 | 3.0 | 3.6 |
| 2,4-DIMETHYLHEPTANE | * | 0.7 | 2.9 | 1.7 | 0.7 | 0.4 | 1.3 | 1.9 |
| 4-METHYLOCTANE | 2.1 | 1.2 | 2.4 | 1.9 | 2.6 | 1.9 | 2.0 | 2.3 |
| 3-METHYLOCTANE | 1.3 | 0.9 | 1.6 | 1.3 | 1.6 | 1.2 | 1.7 | 2.2 |
| n-NONANE | 2.9 | 0.9 | 2.1 | 1.3 | 2.0 | 1.3 | 1.7 | 3.1 |
| 4-METHYLNONANE | * | * | * | 0.5 | * | * | * | * |
| n-DECANE | 4.1 | 1.6 | 5.4 | 2.3 | 3.0 | 3.1 | 3.0 | 8.6 |
| SUM OTHER PARAFFINS | 42.6 | 9.6 | 25.5 | 22.6 | 29.8 | 20.0 | 28.2 | 44.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 9.5 | 13.4 | 26.2 | 27.7 | 26.2 | 21.9 | 37.7 | 17.6 |
| PROPENE | 5.0 | 5.2 | 9.6 | 10.4 | 14.6 | 6.7 | 13.0 | 6.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 7.2 | 6.5 | 9.4 | 8.3 | 11.5 | 6.5 | 11.2 | 6.0 |
| 1,3-BUTADIENE | 1.0 | 0.9 | 1.9 | 2.3 | 2.3 | 1.3 | 3.1 | 0.6 |
| t-2-BUTENE | 3.1 | 1.5 | 3.6 | 2.4 | 3.1 | 3.7 | 3.8 | 2.7 |
| c-2-BUTENE | 2.4 | 1.2 | 2.6 | 1.6 | 2.5 | 2.7 | 2.7 | 2.0 |
| 1-PENTENE | 1.6 | 1.1 | 2.0 | 1.4 | 2.6 | 2.3 | 2.5 | 1.6 |
| 2-METHYL-1-BUTENE | 2.4 | 1.6 | 3.3 | 2.3 | 3.6 | 3.9 | 3.9 | 5.0 |
| ISOPRENE | 1.8 | 0.8 | 2.6 | 1.3 | 3.8 | 1.7 | 2.8 | 3.3 |
| t-2-PENTENE | 2.8 | 1.9 | 3.6 | 3.3 | 3.7 | 4.2 | 4.3 | 3.1 |
| c-2-PENTENE | 3.9 | 2.6 | 5.0 | * | 5.6 | 6.1 | 5.6 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 0.3 | * | 0.5 | * | * | 2.1 | 4.1 |
| 2-METHYL-2-PENTENE | 0.8 | 0.6 | 1.3 | 1.1 | 1.6 | 1.5 | 1.8 | 1.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.0 | 1.5 | 2.9 | 1.6 | 2.0 | 1.3 | 2.5 | 8.3 |
| a-PINENE | 1.4 | 0.0 | 2.6 | * | * | 1.3 | * | 6.0 |
| SUM OTHER OLEFINS | 18.1 | 7.0 | 24.0 | 19.8 | 23.3 | 24.1 | 29.1 | 45.2 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 9.5 | 8.1 | 16.8 | 15.8 | 21.6 | 15.6 | 26.8 | 16.8 |
| TOLUENE | 34.8 | 26.2 | 49.1 | 49.2 | 74.5 | 45.2 | 74.1 | 52.9 |
| ETHYLBENZENE | 8.0 | 3.6 | 7.2 | 6.6 | 9.5 | 7.1 | 14.4 | 7.6 |
| m&p-XYLENE | 25.8 | 12.7 | 23.0 | 21.0 | 29.4 | 21.4 | 46.2 | 22.4 |
| o-XYLENE | 11.4 | 5.6 | 10.0 | 8.2 | 11.8 | 10.1 | 16.9 | 10.5 |
| n-PROPYLBENZENE | 2.4 | 1.0 | 3.7 | 1.6 | 3.1 | 2.6 | 4.6 | 3.6 |
| m-ETHYLTOLUENE | 8.3 | 3.9 | 8.0 | 6.8 | 9.8 | 6.5 | 13.4 | 6.4 |
| p-ETHYLTOLUENE | 4.7 | 2.2 | 4.3 | 3.5 | 5.0 | 3.5 | 6.8 | 4.9 |
| 1,3,5-TRIMETHYLBENZENE | 4.5 | 2.9 | 5.2 | 3.3 | 5.6 | 3.9 | 7.5 | 6.4 |
| o-ETHYLTOLUENE | 4.4 | 1.9 | 4.5 | 3.3 | 4.6 | 2.9 | 6.0 | 3.7 |
| 1,2,4-TRIMETHYLBENZENE | 13.6 | 7.5 | 16.0 | 14.5 | 20.7 | 14.0 | 25.1 | 15.2 |
| n-DECANE | * | 1.7 | 3.3 | 2.7 | 4.3 | 3.2 | 5.5 | 4.3 |
| 1,4-DIETHYLBENZENE | * | 2.1 | 3.8 | 2.5 | 4.7 | 3.3 | 5.1 | 3.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.3 | 1.6 | 3.7 | 2.2 | 3.1 | 2.0 | 2.9 | 5.4 |
| SUM OTHER AROMATICS | 68.1 | 23.6 | 37.1 | 21.3 | 29.7 | 36.5 | 35.1 | 44.9 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 12.0 | 8.6 | 20.2 | 18.6 | 32.0 | 15.5 | 28.7 | 13.1 |
| SUM UNKNOWNS | 14.4 | 3.6 | 0.9 | 1.3 | 5.5 | 1.0 | 5.0 | 7.9 |
| SUM PARAFFINS | 257.0 | 142.9 | 329.5 | 224.9 | 382.3 | 314.2 | 393.3 | 378.5 |
| SUM OLEFINS | 63.3 | 46.8 | 101.3 | 84.4 | 107.1 | 89.8 | 126.8 | 113.7 |
| SUM AROMATICS | 199.3 | 105.2 | 196.3 | 163.1 | 237.9 | 178.2 | 291.0 | 209.2 |
| SUM HYDROCARBONS | 546.2 | 307.3 | 648.4 | 492.5 | 765.0 | 598.9 | 845.0 | 722.8 |

TABLE A- 4b. Hydrocarbon concentration data for BALTIMORE, MD

| Compound | ID Number and Sample Date | |
|---|---|---|
| | 2105<br>86/08/05 | 2188<br>86/08/11 |
| PARAFFINS | | |
| ETHANE | 64.4 | 12.7 |
| PROPANE | 45.0 | 8.8 |
| ISOBUTANE | 36.2 | 7.2 |
| n-BUTANE | 137.0 | 22.4 |
| ISOPENTANE | 118.9 | 24.3 |
| n-PENTANE | 58.3 | 4.1 |
| 2,2-DIMETHYLBUTANE | 3.8 | 0.6 |
| CYCLOPENTANE | 4.9 | 0.8 |
| 2,3-DIMETHYLBUTANE | 9.2 | 1.9 |
| 2-METHYLPENTANE | 30.3 | 5.5 |
| 3-METHYLPENTANE | 19.0 | 4.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 17.5 | 3.2 |
| METHYLCYCLOPENTANE | 11.8 | 2.2 |
| 2,4-DIMETHYLPENTANE | 5.0 | 0.8 |
| CYCLOHEXANE | 2.2 | 0.3 |
| 2-METHYLHEXANE | 16.8 | 1.4 |
| 2,3-DIMETHYLPENTANE | * | 2.4 |
| 3-METHYLHEXANE | 10.1 | 1.9 |
| 2,2,4-TRIMETHYLPENTANE | 20.3 | 3.1 |
| n-HEPTANE | 7.5 | 1.5 |
| METHYLCYCLOHEXANE | 4.9 | 1.3 |
| 2,5-DIMETHYLHEXANE | 3.6 | 0.3 |
| 2,4-DIMETHYLHEXANE | 4.0 | 0.6 |
| 2,3,4-TRIMETHYLPENTANE | 7.2 | 1.2 |
| 2-METHYLHEPTANE | 4.6 | 1.0 |
| 3-METHYLHEPTANE | 5.1 | 0.8 |
| 2,2,5-TRIMETHYLHEXANE | 2.9 | 0.6 |
| n-OCTANE | 4.8 | 1.3 |
| 2,4-DIMETHYLHEPTANE | 1.0 | 4.4 |
| 4-METHYLOCTANE | 3.4 | 0.8 |
| 3-METHYLOCTANE | 2.4 | 0.6 |
| n-NONANE | 3.4 | 0.9 |
| 4-METHYLNONANE | * | * |
| n-DECANE | 8.3 | 1.9 |
| SUM OTHER PARAFFINS | 43.1 | 17.8 |

| | | |
|---|---|---|
| OLEFINS | | |
| ETHYLENE | 41.7 | 8.2 |
| PROPENE | 14.3 | 2.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 13.8 | 3.0 |
| 1,3-BUTADIENE | 1.5 | 0.8 |
| t-2-BUTENE | 6.4 | * |
| c-2-BUTENE | 5.8 | 0.8 |
| 1-PENTENE | 4.9 | 0.3 |
| 2-METHYL-1-BUTENE | 7.4 | 0.4 |
| ISOPRENE | 2.7 | 1.0 |
| t-2-PENTENE | 8.7 | 0.3 |
| c-2-PENTENE | 12.5 | 1.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 0.2 |
| 2-METHYL-2-PENTENE | 3.1 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 6.7 | 1.7 |
| a-PINENE | 2.2 | * |
| SUM OTHER OLEFINS | 46.6 | 4.1 |
| AROMATICS | | |
| BENZENE | 30.8 | 5.1 |
| TOLUENE | 99.2 | 20.3 |
| ETHYLBENZENE | 13.8 | 2.8 |
| m&p-XYLENE | 43.8 | 9.7 |
| o-XYLENE | 17.0 | 4.3 |
| n-PROPYLBENZENE | 4.6 | 0.9 |
| m-ETHYLTOLUENE | 14.4 | 3.4 |
| p-ETHYLTOLUENE | 7.3 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 9.7 | 2.5 |
| o-ETHYLTOLUENE | 6.7 | 1.5 |
| 1,2,4-TRIMETHYLBENZENE | 28.2 | 8.2 |
| n-DECANE | 6.3 | 10.5 |
| 1,4-DIETHYLBENZENE | 7.0 | 1.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.5 | 2.0 |
| SUM OTHER AROMATICS | 79.2 | 14.4 |
| SUMMARY | | |
| ACETYLENE | 34.1 | 5.5 |
| SUM UNKNOWNS | 3.0 | 6.6 |
| SUM PARAFFINS | 718.4 | 144.3 |
| SUM OLEFINS | 178.9 | 24.7 |
| SUM AROMATICS | 373.2 | 89.8 |
| SUM HYDROCARBONS | 1307.7 | 271.1 |

TABLE A- 5a. Hydrocarbon concentration data for BEAUMONT, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1016 85/06/04 | 1059 85/06/06 | 1130 85/06/14 | 1185 85/06/19 | 1216 84/07/11 | 1233 86/06/17 | 1264 84/07/12 | 1274 84/07/16 |
| PARAFFINS | | | | | | | | |
| ETHANE | 11.1 | 35.5 | 46.4 | 103.5 | 41.0 | 30.9 | 36.2 | 29.2 |
| PROPANE | 15.4 | 57.5 | 44.8 | 96.7 | 38.4 | 34.8 | 27.8 | 34.0 |
| ISOBUTANE | 37.6 | 38.1 | 22.3 | 502.9 | 22.5 | 45.3 | 16.7 | 30.4 |
| n-BUTANE | 154.7 | 113.1 | 45.9 | 82.4 | 37.7 | 76.0 | 27.7 | 28.3 |
| ISOPENTANE | 151.0 | 110.7 | 33.0 | 101.9 | 46.1 | 69.1 | 40.5 | 31.0 |
| n-PENTANE | 53.7 | 40.8 | 18.3 | 64.6 | 22.2 | 28.9 | 17.8 | 15.4 |
| 2,2-DIMETHYLBUTANE | 1.9 | 4.3 | 1.4 | 3.3 | 2.4 | 2.1 | 1.8 | 1.0 |
| CYCLOPENTANE | 5.4 | 3.8 | 1.4 | 6.1 | 2.9 | 3.0 | 2.7 | 1.6 |
| 2,3-DIMETHYLBUTANE | 7.9 | 5.1 | 2.4 | 5.3 | 4.3 | 4.5 | 3.5 | 2.2 |
| 2-METHYLPENTANE | 30.1 | 19.4 | 9.0 | 24.7 | 18.9 | 17.9 | 14.8 | 10.1 |
| 3-METHYLPENTANE | 23.0 | 17.9 | 8.2 | 21.1 | 13.3 | 13.5 | 9.4 | 5.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 25.1 | 14.8 | 8.8 | 24.7 | 12.2 | 24.3 | 13.4 | 7.3 |
| METHYLCYCLOPENTANE | 12.5 | 7.5 | 6.6 | 12.3 | 7.2 | 9.8 | 6.5 | 4.4 |
| 2,4-DIMETHYLPENTANE | 2.3 | 1.3 | 1.4 | 2.2 | 1.8 | 1.5 | 1.2 | 0.3 |
| CYCLOHEXANE | 7.6 | 3.3 | 2.8 | 8.4 | 3.2 | 7.7 | 2.4 | 2.9 |
| 2-METHYLHEXANE | 29.3 | 22.1 | 11.4 | 7.2 | 6.7 | 6.2 | 4.5 | 1.9 |
| 2,3-DIMETHYLPENTANE | * | * | * | 12.0 | * | * | * | * |
| 3-METHYLHEXANE | 14.3 | 12.3 | 4.7 | 12.2 | 9.1 | 4.5 | 3.6 | 1.3 |
| 2,2,4-TRIMETHYLPENTANE | 10.2 | 5.7 | 4.5 | 5.8 | 5.0 | 5.5 | 2.9 | 3.1 |
| n-HEPTANE | 5.2 | 4.7 | 3.6 | 14.7 | 5.0 | 4.2 | 2.8 | 2.0 |
| METHYLCYCLOHEXANE | 4.3 | 4.2 | 3.2 | 15.6 | 4.0 | 4.0 | 3.0 | 1.0 |
| 2,5-DIMETHYLHEXANE | 1.7 | 1.1 | 0.9 | 2.8 | 1.3 | 0.9 | 1.1 | 0.7 |
| 2,4-DIMETHYLHEXANE | 1.9 | 1.1 | 0.9 | 2.4 | 1.7 | 1.2 | 1.7 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.9 | 1.2 | 1.2 | 2.3 | 1.6 | 1.6 | 1.4 | 1.2 |
| 2-METHYLHEPTANE | 6.2 | 1.2 | 1.2 | 6.9 | 2.3 | 2.4 | 1.2 | 0.7 |
| 3-METHYLHEPTANE | 50.5 | 1.0 | 0.9 | 4.9 | 1.8 | 1.7 | 1.7 | 1.0 |
| 2,2,5-TRIMETHYLHEXANE | 1.9 | 0.2 | 0.3 | 1.8 | 0.7 | 1.5 | 0.6 | 0.5 |
| n-OCTANE | 1.1 | 2.2 | 1.9 | 12.3 | 2.1 | 2.1 | 1.7 | 1.1 |
| 2,4-DIMETHYLHEPTANE | 0.4 | * | * | 0.4 | * | 0.5 | * | * |
| 4-METHYLOCTANE | 6.4 | * | 0.4 | 3.8 | * | 1.7 | 1.2 | 0.6 |
| 3-METHYLOCTANE | 7.6 | 0.5 | * | 3.8 | 0.7 | 1.1 | 0.9 | 0.4 |
| n-NONANE | 7.2 | 17.0 | 0.9 | 11.7 | 1.5 | 1.6 | 1.8 | 0.6 |
| 4-METHYLNONANE | 11.1 | * | * | 7.6 | * | 2.2 | * | * |
| n-DECANE | 3.9 | 1.7 | 1.4 | 14.3 | 1.8 | 0.2 | 3.0 | 1.0 |
| SUM OTHER PARAFFINS | 582.5 | 269.2 | 156.3 | 190.6 | 59.0 | 25.4 | 40.2 | 25.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 60.2 | 8.9 | 25.5 | 105.8 | 13.7 | 42.1 | 24.6 | 23.0 |
| PROPENE | 9.3 | 3.0 | 7.3 | 61.3 | 4.2 | 12.0 | 9.2 | 11.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 9.8 | 5.8 | 3.9 | 7.0 | 4.5 | 6.9 | 5.1 | 5.3 |
| 1,3-BUTADIENE | 0.4 | 0.3 | 0.5 | 8.0 | 0.7 | 3.1 | 1.2 | 0.4 |
| t-2-BUTENE | 8.2 | 4.8 | 0.9 | 3.4 | 2.4 | 3.8 | 1.7 | 1.2 |
| c-2-BUTENE | 9.0 | 3.5 | 0.5 | 1.8 | 1.7 | 3.0 | 1.5 | 1.0 |
| 1-PENTENE | 4.3 | 2.3 | 0.8 | 1.5 | 1.2 | 2.3 | 1.3 | 1.5 |
| 2-METHYL-1-BUTENE | 7.0 | 3.5 | 0.6 | 1.8 | 2.1 | 3.3 | 2.1 | 1.2 |
| ISOPRENE | 1.0 | 0.8 | 4.9 | 1.7 | 3.8 | 2.3 | 3.5 | 3.2 |
| t-2-PENTENE | 9.4 | 3.6 | 0.6 | 1.7 | 2.7 | 3.7 | 2.8 | 1.3 |
| c-2-PENTENE | * | 3.8 | 0.6 | 3.0 | 3.2 | * | 3.2 | 1.8 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.3 | 0.8 | * | 0.3 | * | 0.5 | * | * |
| 2-METHYL-2-PENTENE | 2.3 | 1.3 | 0.5 | 0.9 | 1.1 | 0.8 | 0.9 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 6.1 | 6.9 | 5.7 | 3.5 | 1.0 | 1.1 | 0.8 | 0.4 |
| a-PINENE | 50.3 | 183.4 | 114.5 | 108.1 | 3.2 | 5.8 | 1.5 | 0.9 |
| SUM OTHER OLEFINS | 115.0 | 423.0 | 229.8 | 191.7 | 49.0 | 16.2 | 35.3 | 25.0 |
| AROMATICS | | | | | | | | |
| BENZENE | 15.0 | 11.8 | 8.7 | 35.6 | 7.9 | 12.9 | 6.6 | 5.2 |
| TOLUENE | 65.6 | 48.3 | 14.0 | 41.9 | 21.0 | 22.6 | 20.0 | 14.9 |
| ETHYLBENZENE | 19.5 | 8.1 | 5.3 | 12.4 | 4.7 | 4.1 | 4.6 | 3.2 |
| m&p-XYLENE | 337.9 | 11.0 | 8.0 | 26.9 | 14.6 | 12.8 | 14.7 | 9.3 |
| o-XYLENE | 2.8 | 6.0 | 3.3 | 10.5 | 5.5 | 6.0 | 4.9 | 3.1 |
| n-PROPYLBENZENE | 2.8 | 3.3 | 1.2 | 4.2 | 1.4 | 0.8 | 1.5 | 0.8 |
| m-ETHYLTOLUENE | 4.3 | 31.5 | 10.3 | 15.3 | 5.3 | * | 4.4 | 2.7 |
| p-ETHYLTOLUENE | 16.6 | * | 7.4 | 11.8 | 2.7 | 3.5 | 2.6 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 1.1 | 1.9 | 1.1 | 4.9 | 2.3 | * | 2.4 | 1.2 |
| o-ETHYLTOLUENE | 44.7 | 9.9 | 5.2 | 10.0 | 2.5 | 1.8 | 2.8 | 1.5 |
| 1,2,4-TRIMETHYLBENZENE | 2.4 | 4.1 | 3.5 | 15.9 | 7.8 | 10.8 | 6.1 | 3.7 |
| n-DECANE | * | * | 99.5 | 25.4 | 5.6 | * | 7.6 | 2.6 |
| 1,4-DIETHYLBENZENE | * | 1.6 | 0.8 | 3.3 | 2.5 | * | 1.7 | 1.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.3 | * | * | * | 2.2 | 0.9 | 3.0 | 0.5 |
| SUM OTHER AROMATICS | 979.5 | 305.6 | 92.6 | 151.8 | 61.5 | 17.3 | 29.6 | 17.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 3.0 | 3.6 | 9.5 | 4.2 | 7.1 | 5.4 | 8.5 | 7.3 |
| SUM UNKNOWNS | 154.5 | 28.2 | 3.0 | 45.6 | 17.9 | 3.3 | 5.7 | 15.0 |
| SUM PARAFFINS | 1288.7 | 819.8 | 447.9 | 1394.6 | 379.6 | 439.0 | 297.1 | 248.5 |
| SUM OLEFINS | 294.1 | 656.3 | 397.2 | 502.2 | 94.9 | 107.4 | 95.4 | 78.1 |
| SUM AROMATICS | 1495.0 | 443.4 | 261.5 | 370.5 | 148.1 | 94.0 | 113.1 | 69.8 |
| SUM HYDROCARBONS | 3235.5 | 1952.5 | 1119.5 | 2317.3 | 647.9 | 649.3 | 520.3 | 419.0 |

TABLE A- 5b. Hydrocarbon concentration data for BEAUMONT, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1327 85/06/27 | 1403 86/06/25 | 1404 85/07/03 | 1458 84/07/26 | 1539 86/07/03 | 1570 86/07/07 | 1574 85/07/15 | 1616 84/08/03 |
| PARAFFINS | | | | | | | | |
| ETHANE | 66.2 | 44.1 | 80.8 | 87.7 | 37.6 | 68.4 | 86.2 | 115.5 |
| PROPANE | 84.0 | 72.7 | 76.6 | 92.4 | 49.2 | 54.7 | 100.1 | 110.0 |
| ISOBUTANE | 45.9 | 28.9 | 39.1 | 47.1 | 48.8 | 61.2 | 90.9 | 62.7 |
| n-BUTANE | 101.9 | 50.7 | 63.8 | 99.8 | 38.5 | 55.4 | 207.9 | 72.2 |
| ISOPENTANE | 96.5 | 38.4 | 55.6 | 71.7 | 44.2 | 43.2 | 255.2 | 58.9 |
| n-PENTANE | 49.7 | 23.3 | 28.2 | 38.3 | 19.7 | 19.9 | 88.7 | 33.7 |
| 2,2-DIMETHYLBUTANE | 4.0 | 1.6 | 2.5 | 3.5 | 0.5 | 1.2 | 25.2 | 3.0 |
| CYCLOPENTANE | 6.1 | 4.5 | 2.6 | 4.0 | 1.8 | 1.6 | 8.1 | 5.2 |
| 2,3-DIMETHYLBUTANE | 6.4 | 2.9 | 5.4 | 5.0 | 2.9 | 2.8 | 13.9 | 5.1 |
| 2-METHYLPENTANE | 27.7 | 12.0 | 27.5 | 22.5 | 11.6 | 11.1 | 53.7 | 23.6 |
| 3-METHYLPENTANE | 24.3 | 8.2 | 32.6 | 18.3 | 9.0 | 11.5 | 40.7 | 22.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 21.5 | 11.6 | 48.4 | 37.6 | 24.3 | 21.9 | 48.8 | 45.5 |
| METHYLCYCLOPENTANE | 12.4 | 6.7 | 25.5 | 14.1 | 7.2 | 8.4 | 28.3 | 18.2 |
| 2,4-DIMETHYLPENTANE | 2.7 | 1.0 | 1.9 | 1.8 | 1.1 | 1.0 | 4.8 | 2.1 |
| CYCLOHEXANE | 7.2 | 5.0 | 7.8 | 11.6 | 4.0 | 168.8 | 11.1 | 21.5 |
| 2-METHYLHEXANE | 37.9 | 7.0 | * | 9.8 | 4.4 | 3.2 | 52.0 | 8.8 |
| 2,3-DIMETHYLPENTANE | * | * | 27.0 | * | * | * | * | * |
| 3-METHYLHEXANE | 13.6 | 4.5 | 10.1 | 10.0 | 3.5 | 3.2 | 17.6 | 10.4 |
| 2,2,4-TRIMETHYLPENTANE | 10.0 | 2.6 | 3.9 | 3.9 | 3.4 | 2.8 | 14.6 | 3.0 |
| n-HEPTANE | 8.9 | 6.2 | 7.2 | 8.9 | 3.8 | 2.9 | 9.6 | 9.4 |
| METHYLCYCLOHEXANE | 10.6 | 8.8 | 10.1 | 10.3 | 3.9 | 3.3 | 12.4 | 12.4 |
| 2,5-DIMETHYLHEXANE | 2.1 | 1.3 | 1.3 | 1.8 | 0.5 | 0.2 | 2.8 | 1.7 |
| 2,4-DIMETHYLHEXANE | 2.3 | 0.9 | 1.2 | 1.9 | 0.8 | 0.5 | 3.2 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 2.1 | 1.3 | 1.1 | 1.7 | 1.3 | 1.1 | 2.7 | 1.1 |
| 2-METHYLHEPTANE | 3.2 | 4.4 | 2.9 | 3.0 | 1.3 | 0.8 | 3.5 | 2.3 |
| 3-METHYLHEPTANE | 2.6 | 2.2 | 1.9 | 2.9 | 1.2 | 1.0 | 3.3 | 2.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.1 | 1.0 | 0.4 | 4.2 | 1.3 | 0.5 | 1.8 | 0.8 |
| n-OCTANE | 5.4 | 4.1 | 3.6 | 4.0 | 1.4 | 1.0 | 4.2 | 4.4 |
| 2,4-DIMETHYLHEPTANE | * | 1.8 | * | 0.0 | 0.5 | 0.4 | * | * |
| 4-METHYLOCTANE | 1.6 | 1.8 | 1.0 | 2.7 | 1.4 | 0.9 | 1.3 | 3.0 |
| 3-METHYLOCTANE | * | 2.7 | * | 2.0 | 0.9 | 0.5 | * | 1.5 |
| n-NONANE | 2.6 | 4.0 | 1.9 | 8.1 | 1.3 | 0.8 | 3.4 | 3.9 |
| 4-METHYLNONANE | * | * | * | * | * | * | 2.7 | 0.6 |
| n-DECANE | 3.0 | 3.8 | 2.9 | 3.9 | 3.2 | 0.6 | 3.6 | 3.9 |
| SUM OTHER PARAFFINS | 187.6 | 40.3 | 191.8 | 89.9 | 25.4 | 18.8 | 360.8 | 61.0 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 106.7 | 39.8 | 13.8 | 124.6 | 39.6 | 97.2 | 31.3 | 75.3 |
| PROPENE | 7.8 | 14.8 | 4.8 | 27.3 | 26.6 | 7.2 | 16.0 | 8.6 |
| 2-METHYLPROPYLENE,BUTENE-1 | 11.9 | 6.0 | 4.2 | 6.2 | 22.6 | 2.2 | 19.5 | 4.3 |
| 1,3-BUTADIENE | 2.7 | 2.3 | 0.7 | 6.7 | 1.6 | 0.7 | 1.5 | 1.8 |
| t-2-BUTENE | 5.7 | 1.3 | 2.6 | 3.5 | 2.3 | 1.3 | 16.7 | 2.6 |
| c-2-BUTENE | 4.1 | 0.6 | 1.6 | 2.4 | 1.9 | 1.0 | 12.0 | 1.7 |
| 1-PENTENE | 2.6 | 0.6 | 1.3 | 1.7 | 1.1 | 0.9 | 6.6 | 1.7 |
| 2-METHYL-1-BUTENE | 4.0 | 1.0 | 1.7 | 2.5 | 1.5 | 1.4 | 11.1 | 1.9 |
| ISOPRENE | 3.6 | 8.2 | 3.4 | 3.8 | 3.7 | 1.2 | 6.7 | 3.0 |
| t-2-PENTENE | 5.4 | 1.2 | 2.0 | 2.7 | 2.0 | 0.9 | 12.2 | 0.0 |
| c-2-PENTENE | 6.2 | 2.2 | 1.9 | 3.2 | 3.4 | 1.0 | 13.1 | * |
| 2-METHYL-1-PENTENE,1-HEXENE | 3.3 | * | 2.2 | * | * | * | 1.8 | * |
| 2-METHYL-2-PENTENE | 1.7 | 0.2 | 0.7 | 1.1 | 0.6 | 0.1 | 3.9 | 0.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 12.4 | 0.8 | 8.1 | 1.1 | 1.6 | 0.6 | 11.4 | 0.9 |
| a-PINENE | 183.9 | 20.1 | 155.6 | 4.2 | 6.0 | 15.6 | 235.2 | 4.0 |
| SUM OTHER OLEFINS | 269.5 | 55.2 | 232.2 | 36.0 | 17.5 | 13.2 | 423.9 | 31.2 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 18.0 | 16.4 | 12.4 | 16.9 | 10.2 | 12.3 | 25.0 | 15.8 |
| TOLUENE | 33.5 | 20.9 | 21.2 | 26.1 | 27.9 | 15.6 | 38.0 | 22.3 |
| ETHYLBENZENE | 10.5 | 3.6 | 7.4 | 6.4 | 4.0 | 3.0 | 14.3 | 5.0 |
| m&p-XYLENE | 20.8 | 10.8 | 21.0 | 22.9 | 12.0 | 10.3 | 23.6 | 14.4 |
| o-XYLENE | 9.1 | 6.1 | 4.6 | 5.7 | 6.7 | 5.3 | 8.4 | 4.8 |
| n-PROPYLBENZENE | 3.9 | 0.7 | 2.2 | 1.5 | 1.5 | 0.5 | 6.5 | 1.1 |
| m-ETHYLTOLUENE | 22.1 | 3.3 | 16.3 | 4.6 | 3.7 | 3.4 | 25.7 | 3.5 |
| p-ETHYLTOLUENE | 11.4 | 1.6 | 2.8 | 3.4 | 1.9 | 1.1 | 4.9 | 2.3 |
| 1,3,5-TRIMETHYLBENZENE | 3.5 | 0.6 | 2.5 | 1.1 | 2.3 | 1.9 | 6.9 | 1.9 |
| o-ETHYLTOLUENE | 10.2 | 2.2 | 10.1 | 3.3 | 2.2 | 1.2 | 18.0 | 2.4 |
| 1,2,4-TRIMETHYLBENZENE | 9.2 | 6.0 | 6.2 | 6.7 | 11.0 | 10.6 | 9.7 | 6.2 |
| n-DECANE | 28.3 | 1.2 | 24.7 | 5.6 | 2.2 | 0.8 | 36.3 | 4.1 |
| 1,4-DIETHYLBENZENE | 2.5 | 1.7 | 1.1 | 2.7 | 1.2 | 0.8 | 2.7 | 1.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 2.7 | * | 5.0 | 1.8 | 0.6 | * | 3.1 |
| SUM OTHER AROMATICS | 137.5 | 26.3 | 115.8 | 63.8 | 22.1 | 22.7 | 167.8 | 34.8 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 8.9 | 5.6 | 5.1 | 22.1 | 13.7 | 6.1 | 5.9 | 5.1 |
| SUM UNKNOWNS | 30.7 | 4.3 | 45.6 | 5.7 | 1.8 | 2.2 | 31.6 | 10.7 |
| SUM PARAFFINS | 852.5 | 412.1 | 768.3 | 725.7 | 361.2 | 574.9 | 1564.4 | 733.0 |
| SUM OLEFINS | 632.0 | 154.9 | 437.5 | 227.3 | 132.8 | 145.0 | 823.5 | 138.3 |
| SUM AROMATICS | 321.1 | 104.6 | 248.7 | 176.5 | 111.4 | 90.6 | 388.2 | 124.0 |
| SUM HYDROCARBONS | 1845.4 | 682.7 | 1505.6 | 1158.2 | 621.1 | 819.0 | 2813.9 | 1011.3 |

TABLE A- 5c. Hydrocarbon concentration data for BEAUMONT, TX

| Compound | ID Number and Sample Date<br>1671<br>84/08/08 | 1677<br>85/07/22 | 1715<br>85/07/23 | 1872<br>84/08/21 | 1909<br>86/07/25 | 1980<br>85/08/09 | 2038<br>86/08/01 | 2050<br>84/08/28 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 106.2 | 53.0 | 34.9 | 233.3 | 27.2 | 52.9 | 45.7 | 57.2 |
| PROPANE | 118.6 | 51.1 | 31.5 | 302.9 | 25.5 | 41.5 | 47.3 | 49.6 |
| ISOBUTANE | 86.4 | 28.5 | 17.6 | 213.9 | 15.8 | 19.8 | 39.5 | 31.9 |
| n-BUTANE | 255.9 | 40.3 | 35.2 | 593.7 | 20.2 | 33.8 | 30.7 | 75.0 |
| ISOPENTANE | 205.5 | 34.9 | 48.0 | 1089.0 | 29.9 | 36.8 | 36.5 | 76.0 |
| n-PENTANE | 91.4 | 19.3 | 19.0 | 192.2 | 11.0 | 16.7 | 18.5 | 35.4 |
| 2,2-DIMETHYLBUTANE | 8.3 | 2.5 | 11.7 | 13.9 | 1.5 | 2.5 | 1.1 | 2.8 |
| CYCLOPENTANE | 13.4 | 2.5 | 2.8 | 30.8 | 1.6 | 3.4 | 1.7 | 3.5 |
| 2,3-DIMETHYLBUTANE | 15.9 | 27.2 | 4.8 | 33.4 | 2.2 | 3.5 | 2.2 | 5.2 |
| 2-METHYLPENTANE | 65.6 | 212.7 | 23.0 | 100.7 | 8.3 | 14.6 | 8.3 | 18.8 |
| 3-METHYLPENTANE | 40.9 | 270.3 | 28.1 | 62.2 | 7.7 | 19.8 | 7.1 | 12.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 48.7 | 600.7 | 30.7 | 69.2 | 7.9 | 20.1 | 9.8 | 12.6 |
| METHYLCYCLOPENTANE | 27.5 | 293.2 | 15.3 | 46.2 | 4.6 | 9.5 | 5.0 | 9.4 |
| 2,4-DIMETHYLPENTANE | 4.9 | 3.7 | 2.6 | 9.3 | 0.8 | 1.7 | 0.8 | 1.6 |
| CYCLOHEXANE | 12.8 | 28.9 | 3.6 | 25.3 | 2.2 | 4.0 | 3.1 | 5.4 |
| 2-METHYLHEXANE | 19.6 | 43.6 | 62.4 | 29.4 | 3.4 | 3.8 | 3.0 | 6.3 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | 15.5 | * | * |
| 3-METHYLHEXANE | 17.9 | 13.1 | 17.7 | 23.0 | 3.0 | 9.2 | 2.3 | 5.7 |
| 2,2,4-TRIMETHYLPENTANE | 9.0 | 4.3 | 8.3 | 30.2 | 3.4 | 6.3 | 3.1 | 4.0 |
| n-HEPTANE | 12.4 | 4.5 | * | 20.0 | 2.8 | 3.7 | 3.1 | 3.5 |
| METHYLCYCLOHEXANE | 14.8 | 5.7 | 2.2 | 31.4 | 2.6 | 5.3 | 3.6 | 7.5 |
| 2,5-DIMETHYLHEXANE | 3.1 | 1.1 | 1.8 | 5.3 | 0.5 | 1.0 | 0.4 | 1.2 |
| 2,4-DIMETHYLHEXANE | 3.2 | 1.1 | * | 5.1 | 0.6 | 1.1 | 0.8 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 3.6 | 1.2 | 41.5 | 6.0 | 1.2 | 1.6 | 1.0 | 1.4 |
| 2-METHYLHEPTANE | 4.1 | 1.6 | * | 7.9 | 0.8 | 0.8 | 0.6 | 1.5 |
| 3-METHYLHEPTANE | 4.2 | 1.6 | * | 6.0 | 0.9 | 1.5 | 0.9 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.4 | 0.3 | 0.9 | 2.4 | 1.1 | 0.7 | 1.2 | 0.7 |
| n-OCTANE | 4.0 | 2.9 | * | 6.8 | 0.9 | 2.1 | 1.2 | 1.6 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | 0.4 | * | 0.4 | * |
| 4-METHYLOCTANE | 1.4 | 1.0 | 1.7 | 3.0 | 1.1 | 0.8 | 1.0 | 1.1 |
| 3-METHYLOCTANE | 1.5 | 0.4 | 0.6 | 2.5 | 0.9 | 10.0 | 0.7 | 0.6 |
| n-NONANE | 2.4 | 2.2 | 8.9 | 4.4 | 0.7 | 1.5 | 0.8 | 1.2 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.4 | 2.5 | 3.0 | 3.9 | 0.9 | 2.0 | 1.6 | 0.9 |
| SUM OTHER PARAFFINS | 56.9 | 334.1 | 424.0 | 86.9 | 31.7 | 125.3 | 26.6 | 25.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 14.2 | 49.8 | 33.4 | 13.9 | 17.4 | 13.1 | 37.0 | 14.8 |
| PROPENE | 5.3 | 5.3 | 38.0 | 4.5 | 14.1 | 6.4 | 20.3 | 3.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.5 | 3.8 | 6.4 | 19.3 | 3.3 | 3.7 | 7.0 | 6.4 |
| 1,3-BUTADIENE | 1.0 | 0.6 | 1.3 | 1.8 | 0.3 | 1.0 | 0.2 | 0.6 |
| t-2-BUTENE | 10.2 | 1.5 | 2.9 | 23.6 | 0.8 | 1.7 | 1.4 | 3.7 |
| c-2-BUTENE | 7.8 | 1.0 | 1.1 | 15.4 | * | 1.1 | 0.7 | 3.1 |
| 1-PENTENE | 6.4 | 1.1 | 1.8 | 11.9 | 0.7 | 1.1 | 0.3 | 2.4 |
| 2-METHYL-1-BUTENE | 9.5 | 1.3 | 2.6 | 16.6 | 1.0 | 1.5 | 0.8 | 3.8 |
| ISOPRENE | 1.3 | 5.7 | 6.6 | 2.9 | 0.1 | 3.4 | 1.6 | 2.9 |
| t-2-PENTENE | 11.0 | 1.8 | 2.9 | 17.4 | 3.5 | 2.7 | 0.3 | 4.2 |
| c-2-PENTENE | 12.3 | 3.0 | 3.1 | 19.5 | 0.5 | 1.6 | 1.2 | 5.2 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 4.0 | * | 1.2 | 5.5 | 0.1 | * | * | 0.2 |
| 2-METHYL-2-PENTENE | 2.8 | 1.7 | 2.7 | 3.5 | 0.1 | 0.5 | * | 1.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.2 | 12.6 | 13.3 | 2.1 | 1.0 | 8.1 | 0.7 | 0.6 |
| a-PINENE | 1.5 | 243.8 | 306.7 | 1.6 | * | 178.6 | * | 1.1 |
| SUM OTHER OLEFINS | 50.7 | 408.2 | 557.2 | 58.6 | 14.3 | 177.0 | 12.6 | 20.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 21.6 | 17.3 | 22.6 | 33.0 | 9.1 | 12.6 | 10.6 | 8.3 |
| TOLUENE | 40.4 | 23.2 | 53.2 | 70.3 | 16.7 | 20.9 | 17.6 | 19.3 |
| ETHYLBENZENE | 8.3 | 10.5 | 15.8 | 9.5 | 3.7 | 7.1 | 3.0 | 3.6 |
| m&p-XYLENE | 25.7 | 14.0 | 24.8 | 27.7 | 11.1 | 12.7 | 9.8 | 11.8 |
| o-XYLENE | 8.7 | 6.7 | 11.1 | 8.6 | 7.2 | 4.9 | 5.0 | 4.0 |
| n-PROPYLBENZENE | 2.2 | 4.7 | 5.2 | 3.2 | 0.6 | 2.2 | 0.4 | 1.1 |
| m-ETHYLTOLUENE | 6.4 | 23.4 | 30.3 | 5.5 | 3.7 | 13.8 | 2.9 | 3.8 |
| p-ETHYLTOLUENE | 3.9 | 15.6 | 24.8 | 3.6 | 1.3 | 2.5 | 1.1 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 3.6 | 3.3 | 4.3 | 3.5 | 2.2 | 4.0 | 1.4 | 1.9 |
| o-ETHYLTOLUENE | 3.0 | 17.4 | 23.1 | 3.4 | 1.9 | 7.8 | 1.3 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 9.5 | 6.6 | 9.7 | 8.5 | 10.6 | 5.8 | 8.5 | 5.3 |
| n-DECANE | 4.3 | 36.9 | 44.3 | 4.1 | 1.0 | * | 0.8 | 3.7 |
| 1,4-DIETHYLBENZENE | 2.9 | 1.3 | 3.1 | 2.5 | 1.1 | 2.1 | 0.8 | 1.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.3 | * | * | 2.5 | 0.7 | * | 1.1 | 0.8 |
| SUM OTHER AROMATICS | 31.3 | 183.3 | 242.9 | 27.0 | 28.2 | 118.1 | 20.2 | 14.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 7.1 | 6.1 | 13.9 | 2.9 | 3.9 | 6.5 | 8.4 | 5.8 |
| SUM UNKNOWNS | 5.9 | 8.4 | 62.1 | 12.0 | 0.5 | 14.7 | 2.3 | 17.6 |
| SUM PARAFFINS | 1265.1 | 2091.3 | 882.8 | 3291.7 | 224.7 | 474.1 | 311.1 | 464.9 |
| SUM OLEFINS | 145.5 | 741.8 | 981.7 | 218.5 | 57.6 | 402.1 | 84.5 | 74.8 |
| SUM AROMATICS | 174.6 | 364.8 | 515.7 | 213.5 | 99.5 | 214.9 | 85.0 | 84.4 |
| SUM HYDROCARBONS | 1598.3 | 3212.6 | 2456.4 | 3739.4 | 386.3 | 1112.5 | 491.5 | 647.8 |

TABLE A- 5d. Hydrocarbon concentration data for BEAUMONT, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2079<br>85/08/15 | 2099<br>86/08/05 | 2160<br>85/08/20 | 2294<br>85/08/28 | 2299<br>86/08/15 | 2320<br>86/08/18 | 2399<br>85/09/06 | 2432<br>85/09/10 |
| PARAFFINS | | | | | | | | |
| ETHANE | 83.8 | 53.9 | 47.6 | 33.2 | 47.9 | 49.1 | 26.7 | 50.7 |
| PROPANE | 123.1 | 41.4 | 37.4 | 36.5 | 126.1 | 56.1 | 43.3 | 47.8 |
| ISOBUTANE | 150.6 | 62.7 | 16.8 | 18.0 | 53.2 | 47.9 | 28.3 | 40.7 |
| n-BUTANE | 85.7 | 58.4 | 24.7 | 32.5 | 124.5 | 60.8 | 90.4 | 77.1 |
| ISOPENTANE | 50.2 | 19.8 | 27.8 | 18.1 | 133.1 | 68.7 | 100.7 | 46.1 |
| n-PENTANE | 31.5 | 9.2 | 13.6 | 9.7 | 37.8 | 40.1 | 26.9 | 21.8 |
| 2,2-DIMETHYLBUTANE | 1.2 | 0.7 | 2.2 | 0.8 | 2.9 | 1.7 | 2.3 | 2.4 |
| CYCLOPENTANE | 2.4 | 0.8 | 2.7 | 0.7 | 3.7 | 2.6 | 2.8 | 2.8 |
| 2,3-DIMETHYLBUTANE | 2.8 | 1.7 | 2.8 | 1.6 | 6.5 | 3.2 | 5.0 | 3.7 |
| 2-METHYLPENTANE | 13.3 | 7.6 | 12.2 | 7.1 | 21.3 | 12.2 | 20.3 | 17.1 |
| 3-METHYLPENTANE | 20.4 | 10.5 | 19.4 | 11.0 | 13.9 | 9.4 | 23.1 | 21.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 19.4 | 26.4 | 20.9 | 14.1 | 12.3 | 14.7 | 29.0 | 26.6 |
| METHYLCYCLOPENTANE | 10.6 | 8.9 | 9.8 | 7.3 | 7.7 | 7.2 | 13.0 | 10.9 |
| 2,4-DIMETHYLPENTANE | 1.3 | 0.6 | 1.1 | 0.6 | 1.8 | 1.1 | 1.3 | 1.1 |
| CYCLOHEXANE | 4.5 | * | 4.0 | 2.2 | 3.3 | 5.4 | 3.1 | 8.4 |
| 2-METHYLHEXANE | 3.6 | 2.0 | 4.0 | 3.3 | 6.2 | 3.5 | 6.0 | 4.9 |
| 2,3-DIMETHYLPENTANE | 15.4 | * | 15.4 | * | * | * | * | * |
| 3-METHYLHEXANE | 4.8 | 2.1 | 8.5 | 2.3 | 4.5 | 2.7 | 4.4 | 4.7 |
| 2,2,4-TRIMETHYLPENTANE | 6.9 | 2.1 | 3.5 | 1.9 | 5.9 | 3.7 | 3.1 | 3.3 |
| n-HEPTANE | 5.8 | 1.9 | 3.7 | 2.1 | 4.6 | 3.4 | 3.6 | 5.2 |
| METHYLCYCLOHEXANE | 6.4 | 2.5 | 5.3 | 2.2 | 4.7 | 4.8 | 3.4 | 4.8 |
| 2,5-DIMETHYLHEXANE | 1.3 | 0.3 | 1.2 | 0.5 | 0.8 | 0.4 | 0.7 | 1.1 |
| 2,4-DIMETHYLHEXANE | 1.3 | 0.5 | 0.9 | 0.3 | 1.0 | 0.9 | 0.6 | 0.9 |
| 2,3,4-TRIMETHYLPENTANE | 2.5 | 0.9 | 1.1 | 0.3 | 1.6 | 1.2 | 0.7 | 1.6 |
| 2-METHYLHEPTANE | 1.5 | 1.4 | 1.6 | 0.5 | 2.0 | 1.9 | 0.6 | 1.2 |
| 3-METHYLHEPTANE | 1.6 | 0.7 | 1.6 | 0.8 | 1.2 | 1.1 | 1.0 | 2.4 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 0.7 | 0.7 | * | 1.6 | 0.9 | * | 1.1 |
| n-OCTANE | 4.0 | 0.8 | 2.1 | 1.1 | 1.4 | 1.4 | 1.0 | 3.8 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | 0.4 | 0.6 | * | * |
| 4-METHYLOCTANE | 1.4 | 0.8 | 1.4 | 0.2 | 1.2 | * | 0.2 | 1.0 |
| 3-METHYLOCTANE | * | 0.8 | 10.7 | 6.1 | 0.9 | 0.8 | 6.1 | 5.1 |
| n-NONANE | 4.4 | 0.6 | 1.5 | 0.7 | 1.2 | 0.7 | 0.8 | 2.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.5 | 0.8 | 2.0 | 1.1 | 1.4 | 1.1 | 1.0 | 2.6 |
| SUM OTHER PARAFFINS | 145.9 | 42.0 | 125.0 | 87.4 | 25.0 | 33.5 | 81.8 | 74.2 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 54.2 | 214.0 | 39.1 | 18.3 | 5.5 | 122.7 | 8.6 | 62.5 |
| PROPENE | 85.6 | 32.6 | 6.2 | 7.8 | 2.1 | 22.8 | 38.6 | 15.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 7.0 | 3.5 | 5.2 | 2.8 | 0.1 | 15.6 | 0.2 | 3.6 |
| 1,3-BUTADIENE | 5.1 | 0.3 | 1.1 | 0.3 | * | 1.5 | 0.5 | 1.1 |
| t-2-BUTENE | 3.3 | 0.5 | 1.3 | 0.9 | 4.3 | 4.1 | 3.1 | 1.7 |
| c-2-BUTENE | 2.9 | * | 0.9 | 0.6 | 3.7 | 1.3 | 2.4 | 1.0 |
| 1-PENTENE | 0.8 | 0.2 | 1.0 | 0.5 | 3.5 | 1.0 | 1.7 | 2.6 |
| 2-METHYL-1-BUTENE | 0.8 | 0.3 | 1.3 | 0.5 | 5.0 | 1.4 | 2.7 | 1.2 |
| ISOPRENE | 0.8 | 0.2 | 3.3 | 0.3 | 0.5 | 1.0 | 0.3 | 0.5 |
| t-2-PENTENE | 0.6 | 0.1 | 2.1 | 0.5 | 4.6 | 1.4 | 2.7 | 1.2 |
| c-2-PENTENE | 0.7 | * | 2.7 | 0.1 | 4.6 | 1.7 | 2.9 | 1.4 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | * | * | * | 0.3 | * | * | * |
| 2-METHYL-2-PENTENE | 0.2 | * | 0.3 | * | 0.9 | 0.1 | 0.4 | 0.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 7.6 | 0.2 | 9.1 | 5.8 | 0.5 | 0.6 | 6.9 | 6.9 |
| a-PINENE | 177.5 | * | 181.6 | 114.2 | * | * | 124.9 | 111.1 |
| SUM OTHER OLEFINS | 174.7 | 11.5 | 199.7 | 123.9 | 27.5 | 21.1 | 143.9 | 104.7 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 14.1 | 6.1 | 12.0 | 6.9 | 8.0 | 11.2 | 9.0 | 13.5 |
| TOLUENE | 21.5 | 11.3 | 19.7 | 9.7 | 19.7 | 18.3 | 13.9 | 21.2 |
| ETHYLBENZENE | 6.7 | 2.2 | 7.2 | 3.9 | 2.9 | 3.4 | 6.0 | 5.9 |
| m&p-XYLENE | 10.8 | 7.8 | 15.3 | 6.0 | 9.4 | 11.2 | 15.9 | 15.1 |
| o-XYLENE | 3.5 | 4.2 | 5.2 | * | 5.1 | 5.3 | 4.2 | 9.1 |
| n-PROPYLBENZENE | 2.4 | 0.3 | 3.3 | 0.9 | 0.4 | 0.4 | 1.0 | 1.1 |
| m-ETHYLTOLUENE | 13.0 | 2.0 | 14.9 | 7.8 | 2.4 | 3.1 | 8.3 | 8.6 |
| p-ETHYLTOLUENE | 4.5 | 1.0 | 2.9 | 1.3 | 1.0 | 1.1 | 1.2 | 2.0 |
| 1,3,5-TRIMETHYLBENZENE | 2.9 | 1.5 | 0.7 | 3.4 | 1.5 | 1.6 | 1.5 | 0.7 |
| o-ETHYLTOLUENE | 8.7 | 0.7 | 7.2 | 5.2 | 1.1 | 1.3 | 4.3 | 3.9 |
| 1,2,4-TRIMETHYLBENZENE | 5.2 | 7.1 | 5.3 | 2.0 | 7.2 | 8.8 | 3.0 | 4.6 |
| n-DECANE | * | 0.7 | * | * | 0.8 | 0.9 | * | * |
| 1,4-DIETHYLBENZENE | 1.4 | 0.9 | 0.7 | 0.6 | 0.6 | 0.9 | 0.9 | 0.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 0.8 | 1.2 | 0.7 | 0.9 | 0.9 | 0.9 | 2.4 |
| SUM OTHER AROMATICS | 136.8 | 21.8 | 110.7 | 63.4 | 15.8 | 21.9 | 66.2 | 63.3 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 3.0 | 2.4 | 4.7 | 4.1 | 2.3 | 5.8 | 2.1 | 5.1 |
| SUM UNKNOWNS | 33.6 | 6.3 | 9.6 | 0.9 | 4.7 | 2.1 | 9.3 | 16.4 |
| SUM PARAFFINS | 814.9 | 365.1 | 434.8 | 305.4 | 662.8 | 444.3 | 532.3 | 500.1 |
| SUM OLEFINS | 522.4 | 263.7 | 455.3 | 277.0 | 63.5 | 196.8 | 340.3 | 315.5 |
| SUM AROMATICS | 231.8 | 69.1 | 206.8 | 112.1 | 77.3 | 90.8 | 136.8 | 152.8 |
| SUM HYDROCARBONS | 1606.0 | 707.2 | 1111.3 | 700.2 | 810.9 | 739.9 | 1021.0 | 990.2 |

TABLE A- 5e. Hydrocarbon concentration data for BEAUMONT, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2471<br>84/09/27 | 2498<br>85/09/13 | 2515<br>85/09/17 | 2579<br>86/09/02 | 2612<br>85/09/24 | 2629<br>85/09/26 | 2634<br>86/09/04 | 2719<br>86/09/10 |
| PARAFFINS | | | | | | | | |
| ETHANE | 35.8 | 143.6 | 47.2 | 66.8 | 85.2 | 59.3 | 99.7 | 46.1 |
| PROPANE | 35.2 | 143.4 | 50.1 | 60.7 | 57.8 | 64.8 | 140.4 | 81.0 |
| ISOBUTANE | 20.1 | 70.4 | 26.8 | 59.8 | 44.0 | 54.0 | 196.4 | 57.3 |
| n-BUTANE | 40.9 | 90.0 | 39.8 | 60.3 | 59.4 | 61.0 | 458.2 | 113.9 |
| ISOPENTANE | 41.7 | 57.4 | 343.8 | 37.9 | 52.1 | 61.7 | 587.3 | 131.8 |
| n-PENTANE | 19.9 | 38.2 | 9.8 | 16.8 | 26.7 | 29.5 | 190.7 | 44.8 |
| 2,2-DIMETHYLBUTANE | 0.7 | 1.9 | 0.9 | 1.3 | 2.7 | 2.9 | 11.3 | 3.5 |
| CYCLOPENTANE | 2.0 | 3.7 | 0.9 | 1.6 | 8.3 | 6.4 | 18.2 | 4.7 |
| 2,3-DIMETHYLBUTANE | 1.0 | 4.7 | 1.7 | 2.6 | 3.5 | 4.4 | 29.9 | 8.6 |
| 2-METHYLPENTANE | 6.5 | 21.5 | 8.0 | 10.0 | 17.0 | 20.5 | 128.7 | 32.8 |
| 3-METHYLPENTANE | 5.3 | 22.5 | 3.2 | 9.9 | 17.8 | 13.5 | 64.5 | 27.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.6 | 28.4 | 12.6 | 17.5 | 18.3 | 21.1 | 51.2 | 53.5 |
| METHYLCYCLOPENTANE | 3.6 | 15.8 | 5.9 | 6.9 | 9.9 | 12.4 | 36.5 | 19.7 |
| 2,4-DIMETHYLPENTANE | 0.4 | 1.5 | 0.5 | 0.9 | 0.8 | 1.3 | 8.1 | 3.3 |
| CYCLOHEXANE | 2.0 | 10.8 | 5.5 | 9.0 | 4.5 | 6.1 | 13.3 | 5.1 |
| 2-METHYLHEXANE | 0.9 | 10.3 | * | * | 4.6 | 10.0 | 29.2 | 14.1 |
| 2,3-DIMETHYLPENTANE | * | * | 10.7 | 2.9 | * | * | * | * |
| 3-METHYLHEXANE | 2.7 | 7.7 | 4.7 | 2.8 | 4.8 | 7.3 | 20.6 | 11.1 |
| 2,2,4-TRIMETHYLPENTANE | 1.0 | 2.8 | 1.6 | 3.2 | 1.7 | 3.0 | 18.5 | 11.0 |
| n-HEPTANE | 3.0 | 11.1 | 2.1 | 3.6 | 6.2 | 8.5 | 16.1 | 10.5 |
| METHYLCYCLOHEXANE | 2.7 | 15.8 | 2.3 | 3.8 | 7.3 | 10.5 | 17.8 | 7.5 |
| 2,5-DIMETHYLHEXANE | 0.5 | 1.8 | 0.4 | 0.7 | 1.4 | 2.1 | 5.1 | 2.9 |
| 2,4-DIMETHYLHEXANE | 0.5 | 1.1 | 0.3 | 0.8 | 0.7 | 1.1 | 4.6 | 2.5 |
| 2,3,4-TRIMETHYLPENTANE | 0.5 | 1.0 | 0.4 | 1.1 | 0.7 | 1.2 | 5.6 | 3.6 |
| 2-METHYLHEPTANE | 1.1 | 5.8 | 0.5 | 1.5 | 2.6 | 4.8 | 8.4 | 4.9 |
| 3-METHYLHEPTANE | 0.9 | 3.6 | 0.7 | 1.1 | 1.9 | 3.1 | 6.7 | 3.8 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | 1.2 | * | 1.6 | * | 0.3 | 3.4 | 1.7 |
| n-OCTANE | 1.8 | 7.0 | 0.9 | 1.3 | 3.8 | 5.8 | 6.2 | 3.9 |
| 2,4-DIMETHYLHEPTANE | * | * | * | 0.6 | * | * | 0.9 | 0.6 |
| 4-METHYLOCTANE | 0.9 | 3.4 | * | 1.1 | 1.8 | 3.2 | 4.0 | 2.8 |
| 3-METHYLOCTANE | 0.5 | 7.8 | 3.2 | 1.2 | 6.0 | 5.6 | 2.9 | 1.7 |
| n-NONANE | 1.9 | 3.9 | 0.9 | 0.7 | 3.7 | 6.2 | 4.5 | 3.0 |
| 4-METHYLNONANE | * | * | * | * | 0.8 | 1.6 | 1.4 | * |
| n-DECANE | 3.5 | 5.2 | 1.4 | 0.7 | 6.6 | 7.6 | 4.3 | 3.5 |
| SUM OTHER PARAFFINS | 27.3 | 128.4 | 62.1 | 15.9 | 77.1 | 80.3 | 81.2 | 36.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 41.2 | 53.0 | 22.8 | 54.7 | 94.0 | 90.5 | 52.5 | 42.8 |
| PROPENE | 22.5 | 13.2 | 8.6 | 5.5 | 45.0 | 55.0 | 26.5 | 9.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.1 | 3.9 | 1.8 | 3.7 | 6.7 | 7.0 | 46.5 | 10.2 |
| 1,3-BUTADIENE | 0.9 | 0.7 | 0.5 | 0.3 | 8.5 | 5.7 | 2.5 | 0.6 |
| t-2-BUTENE | 1.8 | 1.6 | * | 1.2 | 2.3 | 3.3 | 43.7 | 6.0 |
| c-2-BUTENE | 1.3 | 0.5 | 0.3 | 1.0 | 1.5 | 2.6 | 37.8 | 5.2 |
| 1-PENTENE | 0.6 | 0.6 | * | 0.4 | 1.2 | 2.0 | 21.5 | 4.6 |
| 2-METHYL-1-BUTENE | 0.6 | 0.6 | * | 0.9 | 1.3 | 1.9 | 33.0 | 6.7 |
| ISOPRENE | 1.6 | 2.6 | * | 1.1 | 1.5 | 0.6 | 2.3 | 1.0 |
| t-2-PENTENE | 0.8 | 0.3 | * | 0.7 | 1.2 | 1.8 | 36.3 | 6.9 |
| c-2-PENTENE | 0.7 | 0.8 | * | 1.6 | 1.6 | 2.1 | 40.4 | 7.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | * | * | 0.3 | 0.7 | 6.6 | 2.4 |
| 2-METHYL-2-PENTENE | 0.2 | * | 0.4 | 0.1 | 0.2 | 0.3 | 6.8 | 1.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.5 | 9.8 | 5.9 | 0.2 | 4.7 | 3.0 | 1.4 | 0.8 |
| a-PINENE | 1.8 | 139.9 | 96.5 | * | 109.8 | 75.2 | 10.2 | * |
| SUM OTHER OLEFINS | 12.2 | 129.9 | 83.0 | 3.4 | 105.9 | 125.1 | 83.8 | 25.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 10.6 | 16.7 | 6.7 | 9.4 | 41.4 | 49.4 | 36.9 | 18.9 |
| TOLUENE | 16.5 | 22.7 | 10.0 | 15.4 | 25.0 | 23.8 | 68.0 | 42.5 |
| ETHYLBENZENE | 1.9 | 6.3 | 4.0 | 2.6 | 5.9 | 6.6 | 10.8 | 7.6 |
| m&p-XYLENE | 5.0 | 13.4 | 3.3 | 9.6 | 11.2 | 12.3 | 31.2 | 22.5 |
| o-XYLENE | 1.7 | 11.0 | 3.3 | 5.0 | 3.8 | 8.0 | 13.3 | 9.7 |
| n-PROPYLBENZENE | 0.4 | 2.8 | 0.6 | 0.3 | 2.3 | 2.4 | 2.1 | 3.1 |
| m-ETHYLTOLUENE | 1.6 | 13.4 | 6.3 | 2.9 | 8.1 | 6.6 | 7.6 | 6.0 |
| p-ETHYLTOLUENE | 1.0 | * | * | 1.1 | 2.2 | 2.2 | 3.9 | 3.4 |
| 1,3,5-TRIMETHYLBENZENE | 1.0 | 2.0 | 0.3 | 1.5 | 1.1 | 1.2 | 3.6 | 4.0 |
| o-ETHYLTOLUENE | 1.0 | 2.8 | 0.8 | 1.5 | 2.5 | 2.6 | 3.8 | 2.9 |
| 1,2,4-TRIMETHYLBENZENE | 2.4 | 13.5 | 3.5 | 9.4 | 9.5 | 10.3 | 14.9 | 13.6 |
| n-DECANE | 1.7 | * | * | 0.7 | * | * | 3.7 | 2.8 |
| 1,4-DIETHYLBENZENE | 0.5 | 1.4 | 0.3 | 1.1 | 1.1 | 1.1 | 2.6 | 2.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.8 | 3.4 | * | 0.9 | 6.1 | * | 4.4 | 2.0 |
| SUM OTHER AROMATICS | 14.2 | 82.8 | 57.1 | 26.1 | 77.6 | 59.4 | 31.2 | 16.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 3.0 | 3.8 | 5.8 | 8.8 | 4.7 | 2.7 | 4.5 | 6.3 |
| SUM UNKNOWNS | 1.4 | 12.0 | 3.0 | 1.1 | 27.1 | 9.3 | 1.8 | * |
| SUM PARAFFINS | 271.9 | 873.1 | 650.2 | 408.2 | 540.9 | 582.6 | 2277.0 | 760.0 |
| SUM OLEFINS | 90.5 | 358.0 | 220.2 | 75.4 | 386.5 | 377.5 | 452.4 | 131.7 |
| SUM AROMATICS | 62.1 | 192.7 | 96.7 | 88.2 | 198.4 | 186.4 | 238.6 | 159.1 |
| SUM HYDROCARBONS | 429.1 | 1439.8 | 976.1 | 582.4 | 1157.9 | 1158.7 | 2974.5 | 1057.2 |

TABLE A- 5f. Hydrocarbon concentration data for BEAUMONT, TX

| Compound | ID Number and Sample Date<br>2815<br>86/09/17 |
|---|---|
| PARAFFINS | |
| ETHANE | 79.2 |
| PROPANE | 74.2 |
| ISOBUTANE | 53.7 |
| n-BUTANE | 76.6 |
| ISOPENTANE | 56.7 |
| n-PENTANE | 27.1 |
| 2,2-DIMETHYLBUTANE | 1.6 |
| CYCLOPENTANE | 2.5 |
| 2,3-DIMETHYLBUTANE | 3.8 |
| 2-METHYLPENTANE | 15.8 |
| 3-METHYLPENTANE | 12.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 31.5 |
| METHYLCYCLOPENTANE | 11.2 |
| 2,4-DIMETHYLPENTANE | 1.3 |
| CYCLOHEXANE | 10.7 |
| 2-METHYLHEXANE | 6.7 |
| 2,3-DIMETHYLPENTANE | * |
| 3-METHYLHEXANE | 5.9 |
| 2,2,4-TRIMETHYLPENTANE | 4.3 |
| n-HEPTANE | 5.8 |
| METHYLCYCLOHEXANE | 6.3 |
| 2,5-DIMETHYLHEXANE | 1.0 |
| 2,4-DIMETHYLHEXANE | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.4 |
| 2-METHYLHEPTANE | 2.3 |
| 3-METHYLHEPTANE | 1.8 |
| 2,2,5-TRIMETHYLHEXANE | 1.7 |
| n-OCTANE | 2.3 |
| 2,4-DIMETHYLHEPTANE | 0.7 |
| 4-METHYLOCTANE | 1.6 |
| 3-METHYLOCTANE | 1.1 |
| n-NONANE | 1.6 |
| 4-METHYLNONANE | * |
| n-DECANE | 1.9 |
| SUM OTHER PARAFFINS | 22.5 |

**OLEFINS**

| | |
|---|---|
| ETHYLENE | 39.9 |
| PROPENE | 6.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.5 |
| 1,3-BUTADIENE | 1.8 |
| t-2-BUTENE | 1.9 |
| c-2-BUTENE | 1.3 |
| 1-PENTENE | 1.1 |
| 2-METHYL-1-BUTENE | 1.4 |
| ISOPRENE | 0.2 |
| t-2-PENTENE | 1.2 |
| c-2-PENTENE | 2.1 |
| 2-METHYL-1-PENTENE,1-HEXENE | * |
| 2-METHYL-2-PENTENE | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 |
| a-PINENE | * |
| SUM OTHER OLEFINS | 12.7 |

**AROMATICS**

| | |
|---|---|
| BENZENE | 11.3 |
| TOLUENE | 20.0 |
| ETHYLBENZENE | 3.1 |
| m&p-XYLENE | 11.0 |
| o-XYLENE | 6.2 |
| n-PROPYLBENZENE | 1.1 |
| m-ETHYLTOLUENE | 2.7 |
| p-ETHYLTOLUENE | 1.3 |
| 1,3,5-TRIMETHYLBENZENE | 1.8 |
| o-ETHYLTOLUENE | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 9.6 |
| n-DECANE | 1.3 |
| 1,4-DIETHYLBENZENE | 1.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.3 |
| SUM OTHER AROMATICS | 13.8 |

**SUMMARY**

| | |
|---|---|
| ACETYLENE | 6.3 |
| SUM UNKNOWNS | 2.8 |
| SUM PARAFFINS | 529.9 |
| SUM OLEFINS | 76.1 |
| SUM AROMATICS | 88.2 |
| SUM HYDROCARBONS | 703.6 |

TABLE A- 6a. Hydrocarbon concentration data for BOSTON, MA

|  | ID Number and Sample Date |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Compound | 1163<br>85/06/18 | 1283<br>85/06/24 | 1406<br>85/07/03 | 1504<br>85/07/10 | 1622<br>85/07/18 | 1783<br>85/07/26 | 2014<br>85/08/08 | 2077<br>85/08/15 |
| PARAFFINS |  |  |  |  |  |  |  |  |
| ETHANE | 13.0 | 4.9 | 5.4 | 9.7 | 7.1 | 4.1 | 5.5 | 16.7 |
| PROPANE | 17.8 | 3.0 | 6.6 | 8.5 | 6.9 | 2.9 | 4.8 | 22.1 |
| ISOBUTANE | 45.4 | 3.7 | 6.1 | 9.0 | 8.0 | 5.1 | 5.5 | 40.8 |
| n-BUTANE | 71.0 | 8.0 | 13.6 | 19.0 | 16.4 | 11.0 | 14.1 | 111.6 |
| ISOPENTANE | 56.8 | 9.5 | 15.3 | 22.0 | 19.4 | 12.3 | 14.3 | 89.5 |
| n-PENTANE | 24.1 | 4.7 | 6.9 | 9.7 | 8.7 | 5.5 | 7.0 | 31.8 |
| 2,2-DIMETHYLBUTANE | 1.3 | 0.2 | 0.3 | 0.6 | 0.4 | 0.2 | 0.3 | 1.6 |
| CYCLOPENTANE | 1.8 | 0.4 | 0.7 | 1.0 | 0.9 | 0.4 | 0.5 | 2.6 |
| 2,3-DIMETHYLBUTANE | 3.7 | 0.7 | 1.0 | 1.6 | 1.4 | 0.9 | 0.9 | 5.4 |
| 2-METHYLPENTANE | 14.0 | 3.1 | 4.4 | 6.9 | 5.8 | 3.5 | 4.1 | 18.7 |
| 3-METHYLPENTANE | 11.2 | 2.0 | 2.7 | 5.0 | 3.9 | 3.1 | 3.9 | 11.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.9 | 2.1 | 2.7 | 4.5 | 4.0 | 2.4 | 2.8 | 11.2 |
| METHYLCYCLOPENTANE | 4.8 | 1.2 | 1.7 | 2.8 | 2.2 | 1.5 | 1.6 | 7.1 |
| 2,4-DIMETHYLPENTANE | 2.0 | 0.4 | 0.6 | 1.0 | 0.8 | 0.5 | 0.5 | 2.4 |
| CYCLOHEXANE | 1.2 | 0.2 | 0.3 | 0.6 | 0.2 | 0.3 | 0.3 | 1.6 |
| 2-METHYLHEXANE | 3.9 | 1.6 | 3.6 | 5.3 | 4.6 | 5.2 | 5.5 | 11.7 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 4.9 | 1.2 | 1.7 | 2.6 | 2.5 | 1.8 | 2.0 | 6.2 |
| 2,2,4-TRIMETHYLPENTANE | 8.5 | 1.9 | 2.6 | 4.1 | 3.7 | 1.8 | 2.1 | 9.5 |
| n-HEPTANE | 2.8 | 0.8 | 1.1 | 2.0 | 1.4 | 0.9 | 1.8 | 4.2 |
| METHYLCYCLOHEXANE | 2.3 | 0.6 | 0.9 | 1.6 | 1.1 | 0.8 | 1.1 | 4.1 |
| 2,5-DIMETHYLHEXANE | 1.2 | 0.3 | * | 0.8 | 0.7 | 0.0 | 0.1 | 1.7 |
| 2,4-DIMETHYLHEXANE | 1.6 | 0.3 | 0.3 | 0.7 | 0.7 | 0.3 | 0.4 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 2.3 | 0.5 | 1.0 | 1.1 | 1.6 | 0.8 | 1.1 | 2.7 |
| 2-METHYLHEPTANE | 1.7 | 0.3 | 0.5 | 2.7 | 0.6 | 0.4 | 0.5 | 2.7 |
| 3-METHYLHEPTANE | 1.7 | 0.5 | 1.6 | 1.7 | 1.1 | 0.8 | 1.0 | 2.9 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.7 |
| n-OCTANE | 1.9 | * | 0.9 | 3.0 | 1.1 | * | 1.4 | 4.7 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | 0.3 | 0.5 | * |
| 4-METHYLOCTANE | 1.4 | 0.3 | 0.4 | 1.3 | 0.6 | 0.3 | 0.7 | 2.4 |
| 3-METHYLOCTANE | 1.3 | 0.5 | 0.8 | 1.4 | 0.6 | 0.4 | 0.5 | 1.4 |
| n-NONANE | 31.7 | 0.5 | 13.6 | 1.4 | 0.7 | 0.6 | 0.8 | 4.2 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | 2.8 |
| n-DECANE | 4.4 | 0.7 | 1.3 | 1.9 | 1.2 | 1.2 | 1.7 | 6.3 |
| SUM OTHER PARAFFINS | 51.9 | 9.5 | 11.8 | 19.4 | 11.3 | 8.7 | 9.2 | 43.7 |

OLEFINS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ETHYLENE | 12.8 | 6.7 | 8.5 | 9.9 | 11.6 | 7.4 | 7.9 | 16.2 |
| PROPENE | 4.4 | 2.0 | 2.0 | 3.7 | 3.5 | 1.9 | 2.1 | 3.9 |
| 2-METHYLPROPYLENE,BUTENE-1 | 0.2 | 1.9 | 2.1 | 3.8 | 3.0 | 2.4 | 3.0 | 11.2 |
| 1,3-BUTADIENE | 1.0 | 0.4 | 0.3 | 0.7 | 0.6 | 0.4 | 0.5 | 1.0 |
| t-2-BUTENE | 6.1 | 0.7 | 0.8 | 1.4 | 1.3 | 1.1 | 1.2 | 9.0 |
| c-2-BUTENE | 4.7 | 0.5 | 0.7 | 1.2 | 1.0 | 0.9 | 1.1 | 8.2 |
| 1-PENTENE | 1.3 | 0.4 | 0.5 | 1.0 | 0.7 | 0.6 | 0.7 | 5.1 |
| 2-METHYL-1-BUTENE | 3.8 | 0.7 | 0.9 | 1.5 | 1.2 | 1.0 | 1.3 | 7.2 |
| ISOPRENE | 0.6 | 1.0 | 1.1 | 1.5 | 3.8 | 1.0 | 1.7 | 1.1 |
| t-2-PENTENE | 3.9 | 0.8 | 1.0 | 1.7 | 1.3 | 1.7 | 1.2 | 6.7 |
| c-2-PENTENE | 4.0 | 1.0 | 1.2 | 1.9 | 2.2 | 1.5 | 1.7 | 4.7 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.0 | 0.3 | * | 0.5 | * | 0.1 | 0.1 | 3.5 |
| 2-METHYL-2-PENTENE | 1.3 | 0.2 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 1.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.4 | 1.1 | 1.0 | 1.0 | 1.2 | 1.0 | 0.8 | 7.9 |
| a-PINENE | 3.8 | 2.0 | 2.6 | 2.4 | 1.5 | 1.4 | 0.3 | 0.3 |
| SUM OTHER OLEFINS | 38.5 | 13.3 | 18.8 | 22.0 | 10.0 | 8.2 | 4.3 | 20.7 |

AROMATICS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BENZENE | 11.4 | 3.8 | 4.5 | 7.3 | 7.4 | 4.5 | 4.7 | 15.8 |
| TOLUENE | 28.0 | 10.9 | 13.0 | 17.9 | 21.2 | 12.3 | 14.0 | 56.8 |
| ETHYLBENZENE | 4.4 | 1.6 | 2.6 | 3.2 | 2.9 | 1.9 | 2.5 | 6.9 |
| m&p-XYLENE | 15.0 | 5.7 | 8.7 | 11.0 | 9.8 | 6.8 | 9.9 | 21.8 |
| o-XYLENE | 5.6 | 1.9 | 3.1 | 4.0 | 4.7 | 3.5 | 4.3 | 8.3 |
| n-PROPYLBENZENE | 1.8 | 0.3 | 0.4 | 0.6 | 0.6 | 0.5 | 0.4 | 1.4 |
| m-ETHYLTOLUENE | 5.4 | 1.5 | 1.9 | 2.8 | 2.7 | 2.0 | 2.1 | 4.8 |
| p-ETHYLTOLUENE | 2.8 | 0.8 | 1.3 | 1.6 | 1.3 | 1.1 | 1.0 | 2.9 |
| 1,3,5-TRIMETHYLBENZENE | 2.9 | 0.9 | 1.0 | 2.0 | 1.5 | 1.4 | 1.2 | 2.6 |
| o-ETHYLTOLUENE | 3.2 | 0.9 | 1.0 | 1.6 | 1.5 | 1.0 | 1.1 | 3.2 |
| 1,2,4-TRIMETHYLBENZENE | 7.5 | 2.7 | 3.2 | 5.0 | 4.4 | 3.7 | 10.3 | 13.7 |
| n-DECANE | 108.2 | * | 6.2 | 0.7 | 0.6 | 0.5 | 0.5 | 2.3 |
| 1,4-DIETHYLBENZENE | 1.4 | 0.8 | 1.1 | 1.6 | 1.2 | 0.7 | 0.8 | 2.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.2 | 0.8 | 1.1 | 1.3 | 0.8 | * | 1.0 | 3.4 |
| SUM OTHER AROMATICS | 39.7 | 33.7 | 16.9 | 20.1 | 15.3 | 15.1 | 7.5 | 22.8 |

SUMMARY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ACETYLENE | 12.7 | 5.3 | 4.7 | 9.8 | 9.3 | 5.0 | 5.7 | 13.1 |
| SUM UNKNOWNS | 7.9 | 2.5 | 29.0 | 6.8 | 2.2 | 1.6 | 1.4 | 4.8 |
| SUM PARAFFINS | 401.4 | 64.8 | 111.7 | 154.4 | 121.1 | 79.6 | 98.2 | 489.2 |
| SUM OLEFINS | 89.4 | 33.7 | 42.3 | 55.2 | 44.0 | 31.6 | 29.0 | 108.7 |
| SUM AROMATICS | 241.0 | 66.8 | 66.6 | 81.4 | 76.6 | 55.6 | 61.9 | 169.3 |
| SUM HYDROCARBONS | 752.7 | 173.3 | 254.7 | 307.8 | 253.2 | 173.5 | 196.4 | 785.3 |

## TABLE A- 7a. Hydrocarbon concentration data for BRIDGEPORT, CT

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1325<br>86/06/19 | 1417<br>86/06/25 | 1486<br>86/06/30 | 1591<br>86/07/07 | 1735<br>86/07/15 | 1876<br>86/07/23 | 2031<br>86/07/30 | 2082<br>86/08/01 |
| PARAFFINS | | | | | | | | |
| ETHANE | 12.2 | 6.3 | 7.5 | 13.5 | 7.5 | 16.8 | 8.7 | 9.5 |
| PROPANE | 8.8 | 3.4 | 5.4 | 12.3 | 6.4 | 22.2 | 7.2 | 10.1 |
| ISOBUTANE | 12.3 | 4.1 | 5.6 | 11.0 | 6.8 | 26.2 | 7.5 | 11.0 |
| n-BUTANE | 25.6 | 8.5 | 12.2 | 22.8 | 13.7 | 51.7 | 15.6 | 23.8 |
| ISOPENTANE | 35.7 | 13.0 | 16.7 | 32.3 | 20.5 | 67.2 | 20.3 | 33.5 |
| n-PENTANE | 16.5 | 6.6 | 8.0 | 11.7 | 10.0 | 30.0 | 4.6 | 14.1 |
| 2,2-DIMETHYLBUTANE | 0.9 | 0.4 | 0.4 | 0.7 | 0.6 | 1.8 | 0.5 | 0.7 |
| CYCLOPENTANE | 1.4 | 0.5 | 0.6 | 1.0 | 0.8 | 2.8 | 0.7 | 1.2 |
| 2,3-DIMETHYLBUTANE | 2.5 | 1.1 | 1.2 | 2.2 | 1.6 | 5.2 | 1.4 | 2.7 |
| 2-METHYLPENTANE | 10.2 | 4.2 | 4.8 | 7.3 | 6.3 | 18.5 | 4.8 | 9.4 |
| 3-METHYLPENTANE | 7.4 | 3.5 | 4.0 | 5.9 | 4.9 | 11.4 | 4.1 | 6.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.7 | 2.8 | 3.0 | 4.7 | 4.0 | 11.0 | 3.0 | 5.1 |
| METHYLCYCLOPENTANE | 4.0 | 1.7 | 1.8 | 2.9 | 2.4 | 7.5 | 2.0 | 3.6 |
| 2,4-DIMETHYLPENTANE | 1.7 | 0.6 | 0.7 | 1.2 | 1.1 | 3.3 | 0.9 | 1.8 |
| CYCLOHEXANE | 0.8 | 0.3 | 0.3 | 0.5 | 0.4 | 1.4 | 0.3 | 0.7 |
| 2-METHYLHEXANE | 4.2 | 2.7 | 2.7 | * | 3.7 | 11.7 | 5.8 | 7.5 |
| 2,3-DIMETHYLPENTANE | * | * | * | 6.9 | * | * | * | * |
| 3-METHYLHEXANE | 4.0 | 1.7 | 1.7 | 2.8 | 2.5 | 7.9 | 2.3 | 4.2 |
| 2,2,4-TRIMETHYLPENTANE | 5.7 | 2.3 | 2.8 | 4.9 | 3.8 | 11.7 | 3.3 | 6.9 |
| n-HEPTANE | 3.9 | 1.1 | 1.2 | 3.0 | 1.7 | 5.9 | 2.4 | 3.0 |
| METHYLCYCLOHEXANE | 1.9 | 0.8 | 0.8 | 1.4 | 1.2 | 4.2 | 1.4 | 1.8 |
| 2,5-DIMETHYLHEXANE | 1.2 | 0.3 | 0.2 | 0.2 | 0.4 | 2.5 | 0.4 | 0.4 |
| 2,4-DIMETHYLHEXANE | 1.3 | 0.5 | 0.5 | 0.9 | 0.8 | 2.6 | 0.7 | 1.5 |
| 2,3,4-TRIMETHYLPENTANE | 2.4 | 0.9 | 1.2 | 1.9 | 1.6 | 4.6 | 1.3 | 2.7 |
| 2-METHYLHEPTANE | 2.4 | 0.7 | 0.9 | 1.7 | 1.1 | 3.2 | 1.0 | 0.9 |
| 3-METHYLHEPTANE | 1.8 | 0.8 | 0.7 | 1.2 | 1.1 | 3.2 | 0.9 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 0.2 | 0.6 | 0.6 | 0.2 | 1.6 | 0.4 | 1.1 |
| n-OCTANE | * | 0.9 | 2.2 | 1.9 | 2.3 | 5.7 | 1.6 | 4.2 |
| 2,4-DIMETHYLHEPTANE | 1.3 | 2.7 | 1.0 | 1.7 | 1.0 | 2.2 | 0.5 | 0.9 |
| 4-METHYLOCTANE | 2.0 | 0.9 | 0.9 | 1.4 | 1.3 | 2.3 | 1.0 | 1.8 |
| 3-METHYLOCTANE | 1.4 | 0.8 | 0.9 | 1.0 | 0.9 | 2.2 | 0.8 | 1.1 |
| n-NONANE | 1.5 | 0.8 | 0.6 | 1.3 | 1.0 | 2.8 | 1.1 | 1.1 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.4 | 0.9 | 1.0 | 1.8 | 1.4 | 5.7 | 2.3 | 1.5 |
| SUM OTHER PARAFFINS | 20.2 | 6.0 | 5.7 | 10.5 | 6.8 | 31.0 | 12.5 | 12.5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 21.5 | 10.5 | 10.4 | 12.2 | 11.2 | 31.3 | 8.5 | 16.7 |
| PROPENE | 6.3 | 3.1 | 2.8 | 3.4 | 3.6 | 9.5 | 2.6 | 5.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 7.7 | 3.2 | 3.6 | 4.5 | 3.7 | 11.5 | 3.1 | 6.2 |
| 1,3-BUTADIENE | 1.3 | 0.6 | 0.5 | 0.1 | 0.2 | 1.8 | * | 0.2 |
| t-2-BUTENE | 2.7 | 0.9 | 1.0 | 1.0 | 0.9 | 5.2 | 0.8 | 1.9 |
| c-2-BUTENE | 2.2 | 0.7 | 0.8 | 1.0 | 1.0 | 3.9 | 0.7 | 1.8 |
| 1-PENTENE | 1.5 | 0.5 | 0.6 | 0.3 | 0.8 | 3.2 | 0.1 | 1.4 |
| 2-METHYL-1-BUTENE | 2.4 | 0.8 | 1.0 | 0.4 | 1.2 | 4.2 | 0.1 | 2.0 |
| ISOPRENE | 1.3 | * | 0.6 | 0.5 | 0.9 | 3.3 | * | 0.4 |
| t-2-PENTENE | 2.6 | 2.1 | 1.2 | 0.2 | 1.6 | 4.6 | * | 1.0 |
| c-2-PENTENE | 3.7 | * | 1.5 | 1.5 | 2.2 | 8.6 | * | 3.9 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.4 | * | 0.1 | 0.2 | 0.3 | * | 0.2 | 0.5 |
| 2-METHYL-2-PENTENE | 1.1 | 0.1 | 0.1 | 0.2 | 0.6 | 1.8 | 0.4 | 1.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.1 | 1.7 | 1.4 | 1.7 | 3.2 | 6.3 | 2.4 | 2.9 |
| a-PINENE | 0.3 | 0.3 | 0.4 | 0.6 | 0.5 | 1.7 | * | 0.5 |
| SUM OTHER OLEFINS | 12.4 | 5.9 | 4.2 | 5.8 | 7.3 | 27.4 | 6.8 | 12.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 12.1 | 5.3 | 5.5 | 9.9 | 7.1 | 19.9 | 6.2 | 10.1 |
| TOLUENE | 33.4 | 15.5 | 15.4 | 22.9 | 26.8 | 56.6 | 24.0 | 32.1 |
| ETHYLBENZENE | 6.0 | 2.4 | 2.4 | 3.8 | 3.3 | 9.8 | 2.7 | 5.1 |
| m&p-XYLENE | 20.0 | 8.8 | 8.7 | 12.3 | 11.5 | 30.5 | 9.8 | 17.7 |
| o-XYLENE | 8.0 | 3.8 | 3.9 | 5.6 | 4.7 | 13.6 | 4.6 | 6.8 |
| n-PROPYLBENZENE | 1.3 | 0.5 | 0.5 | 0.8 | 0.8 | 2.3 | 0.7 | 1.1 |
| m-ETHYLTOLUENE | 5.4 | 2.4 | 2.4 | 3.4 | 3.3 | 9.0 | 3.0 | 4.8 |
| p-ETHYLTOLUENE | 2.7 | 1.2 | 1.4 | 1.9 | 1.7 | 4.6 | 1.5 | 2.4 |
| 1,3,5-TRIMETHYLBENZENE | 3.4 | 1.5 | 1.7 | 2.1 | 2.0 | 4.0 | 2.0 | 2.9 |
| o-ETHYLTOLUENE | 2.6 | 1.2 | 1.1 | 1.6 | 1.7 | 4.5 | 1.5 | 2.2 |
| 1,2,4-TRIMETHYLBENZENE | 14.3 | 8.7 | 9.1 | 11.8 | 10.4 | 21.8 | 11.8 | 12.6 |
| n-DECANE | 2.0 | 0.8 | 0.8 | 0.9 | 1.3 | * | 1.3 | 1.7 |
| 1,4-DIETHYLBENZENE | 2.1 | 1.1 | 1.0 | 1.1 | 1.1 | 4.4 | 1.0 | 1.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.0 | 1.0 | 0.7 | 1.5 | 1.2 | 4.8 | 1.8 | 1.5 |
| SUM OTHER AROMATICS | 23.0 | 12.1 | 15.5 | 18.4 | 15.7 | 75.3 | 18.3 | 22.7 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 12.7 | 4.3 | 4.5 | 10.6 | 10.1 | 29.0 | 7.8 | 13.9 |
| SUM UNKNOWNS | 1.3 | 1.9 | 0.9 | 2.4 | 1.0 | 2.5 | 4.1 | 2.4 |
| SUM PARAFFINS | 206.0 | 83.3 | 99.5 | 176.6 | 121.3 | 389.8 | 122.8 | 190.3 |
| SUM OLEFINS | 70.3 | 31.0 | 30.9 | 34.3 | 39.9 | 124.9 | 26.1 | 59.2 |
| SUM AROMATICS | 139.3 | 66.8 | 70.7 | 98.6 | 93.2 | 261.5 | 90.8 | 126.3 |
| SUM HYDROCARBONS | 429.8 | 187.4 | 206.7 | 322.7 | 265.6 | 807.9 | 251.7 | 392.3 |

## TABLE A- 7b. Hydrocarbon concentration data for BRIDGEPORT, CT

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 2171 86/08/07 | 2306 86/08/14 | 2468 86/08/27 | 2625 86/08/29 | 2656 86/09/04 | 2698 86/09/08 | 2740 86/09/10 | 2819 86/09/16 |
| PARAFFINS | | | | | | | | |
| ETHANE | 7.4 | 11.3 | 6.2 | 11.1 | 7.5 | 12.0 | 27.8 | 5.3 |
| PROPANE | 7.4 | 9.0 | 5.1 | 7.0 | 6.3 | 7.6 | 30.0 | 3.2 |
| ISOBUTANE | 10.0 | 9.2 | 6.3 | 10.0 | 6.0 | 16.9 | 38.0 | 4.4 |
| n-BUTANE | 20.3 | 18.8 | 12.1 | 20.9 | 12.1 | 32.3 | 63.6 | 7.5 |
| ISOPENTANE | 24.7 | 26.3 | 15.4 | 35.6 | 19.9 | 51.1 | 91.1 | 8.8 |
| n-PENTANE | 6.0 | 11.5 | 2.5 | 16.7 | 6.2 | 21.1 | 39.4 | 3.4 |
| 2,2-DIMETHYLBUTANE | 0.4 | 0.6 | 0.3 | 1.0 | 0.5 | 1.2 | 3.0 | 0.3 |
| CYCLOPENTANE | 0.7 | 1.0 | 0.4 | 1.5 | 0.8 | 1.8 | 3.7 | * |
| 2,3-DIMETHYLBUTANE | 1.6 | 2.4 | 1.2 | 3.5 | 1.5 | 4.0 | 7.6 | 0.8 |
| 2-METHYLPENTANE | 5.3 | 7.9 | 3.2 | 12.3 | 5.7 | 14.5 | 38.0 | 2.9 |
| 3-METHYLPENTANE | 4.5 | 5.9 | 3.1 | 8.7 | 4.4 | 9.8 | 17.0 | 1.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 2.8 | 4.4 | 2.0 | 6.8 | 3.5 | 8.1 | 15.5 | 1.6 |
| METHYLCYCLOPENTANE | 2.0 | 3.2 | 1.3 | 5.0 | 2.3 | 6.0 | 11.4 | 1.2 |
| 2,4-DIMETHYLPENTANE | * | 1.7 | 0.6 | 2.8 | 1.2 | 2.9 | 5.3 | 0.6 |
| CYCLOHEXANE | 0.3 | 0.4 | 0.3 | 1.1 | 0.3 | 1.0 | 2.0 | * |
| 2-METHYLHEXANE | 3.5 | 5.5 | 1.3 | 9.5 | 4.4 | 11.0 | 12.1 | * |
| 2,3-DIMETHYLPENTANE | * | * | 0.7 | * | * | * | 8.9 | 2.2 |
| 3-METHYLHEXANE | 2.0 | 3.3 | 2.3 | 5.5 | 2.9 | 6.3 | 13.2 | 2.3 |
| 2,2,4-TRIMETHYLPENTANE | 4.2 | 7.0 | 2.2 | 10.0 | 4.1 | 9.2 | 22.3 | 1.9 |
| n-HEPTANE | 1.4 | 1.9 | 2.9 | 4.7 | 1.4 | 4.5 | 10.2 | 0.5 |
| METHYLCYCLOHEXANE | 1.2 | 2.0 | 2.1 | 7.2 | 1.3 | 2.9 | 8.0 | 0.7 |
| 2,5-DIMETHYLHEXANE | 0.6 | 0.5 | 0.4 | 2.6 | 0.4 | 2.2 | 4.4 | * |
| 2,4-DIMETHYLHEXANE | 0.8 | 1.4 | 0.4 | 2.4 | 0.8 | 2.2 | 4.4 | 0.4 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 2.5 | 0.7 | 3.9 | 1.6 | 3.7 | 7.9 | 0.8 |
| 2-METHYLHEPTANE | 0.5 | 2.0 | * | 3.4 | 1.3 | 3.7 | 6.0 | 0.6 |
| 3-METHYLHEPTANE | 0.8 | 1.6 | 0.7 | 2.8 | 1.2 | 3.0 | 6.4 | 0.4 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.9 | 2.2 | 1.8 | 1.0 | 1.9 | 2.8 | 0.8 |
| n-OCTANE | 1.4 | 1.2 | 1.4 | 2.8 | 1.6 | 3.1 | 4.2 | 1.5 |
| 2,4-DIMETHYLHEPTANE | 1.0 | 1.0 | 0.4 | 1.8 | 0.6 | 2.2 | 1.8 | 1.4 |
| 4-METHYLOCTANE | 1.0 | 1.7 | 1.0 | 2.8 | 1.4 | 3.0 | 4.7 | 0.2 |
| 3-METHYLOCTANE | 0.7 | 1.1 | 0.7 | 1.9 | 0.9 | 1.8 | 3.6 | 0.4 |
| n-NONANE | 0.8 | 1.3 | 1.3 | 1.6 | * | 1.8 | 4.4 | 0.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | 1.6 | * |
| n-DECANE | 2.0 | 2.2 | 2.5 | 2.6 | 1.4 | 2.4 | 8.0 | 1.2 |
| SUM OTHER PARAFFINS | 7.9 | 11.7 | 9.9 | 20.1 | 8.0 | 20.8 | 53.7 | 3.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 7.7 | 17.9 | 6.9 | 22.5 | 14.2 | 26.5 | 78.8 | 8.0 |
| PROPENE | 2.3 | 5.8 | 1.8 | 9.1 | 4.6 | 9.3 | 19.4 | 1.9 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.4 | 5.3 | 2.3 | 8.6 | 4.4 | 10.5 | 18.5 | 2.2 |
| 1,3-BUTADIENE | 1.2 | 0.7 | * | 2.0 | 0.1 | 1.2 | 4.4 | 0.1 |
| t-2-BUTENE | * | 1.8 | 0.5 | 3.2 | 0.9 | 4.8 | 8.2 | 0.7 |
| c-2-BUTENE | 1.1 | 1.5 | 0.5 | 2.6 | 0.9 | 3.8 | 5.9 | 0.6 |
| 1-PENTENE | 0.6 | 1.1 | 0.1 | 1.9 | 0.4 | 2.5 | 4.7 | 0.1 |
| 2-METHYL-1-BUTENE | 0.7 | 1.8 | 0.2 | 3.3 | 0.7 | 4.2 | 7.0 | 0.2 |
| ISOPRENE | * | 1.7 | 1.4 | 1.4 | 0.3 | 1.7 | 3.0 | 1.0 |
| t-2-PENTENE | 0.3 | 2.6 | 0.1 | 3.5 | 0.3 | 5.3 | 7.9 | 0.2 |
| c-2-PENTENE | * | 3.6 | * | 5.5 | * | 7.0 | 16.5 | * |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.2 | 0.4 | 0.0 | 0.9 | 0.3 | 1.1 | 2.4 | 0.1 |
| 2-METHYL-2-PENTENE | 0.3 | 0.9 | 0.1 | 2.1 | 0.7 | 2.4 | 3.7 | 0.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 10.7 | 1.9 | 1.3 | 1.2 | 1.5 | 1.3 | 7.4 | 0.5 |
| a-PINENE | * | * | * | * | * | * | 1.4 | * |
| SUM OTHER OLEFINS | 5.4 | 12.4 | 4.6 | 27.8 | 12.2 | 31.2 | 43.8 | 3.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 5.0 | 10.1 | 4.2 | 15.4 | 7.8 | 17.0 | 33.4 | 3.4 |
| TOLUENE | 16.7 | 29.8 | 26.9 | 44.1 | 22.7 | 41.4 | 112.9 | 9.2 |
| ETHYLBENZENE | 3.2 | 4.7 | 2.2 | 7.9 | 3.6 | 7.6 | 16.7 | 1.5 |
| m&p-XYLENE | 11.9 | 17.7 | 7.6 | 28.3 | 13.5 | 28.1 | 56.9 | 5.6 |
| o-XYLENE | 4.9 | 6.6 | 3.8 | 10.4 | 5.3 | 10.4 | 23.1 | 2.0 |
| n-PROPYLBENZENE | 0.5 | 1.2 | 0.4 | 3.0 | 1.2 | 1.8 | 5.9 | * |
| m-ETHYLTOLUENE | 2.6 | 4.8 | 1.7 | 8.1 | 3.9 | 8.3 | 16.5 | 1.7 |
| p-ETHYLTOLUENE | 1.2 | 2.3 | 1.1 | 4.1 | 1.9 | 4.4 | 8.4 | 0.9 |
| 1,3,5-TRIMETHYLBENZENE | 2.3 | 2.9 | 1.8 | 4.7 | 3.1 | 5.5 | 8.2 | 0.9 |
| o-ETHYLTOLUENE | 1.3 | 2.3 | 1.8 | 3.7 | 1.9 | 4.0 | 7.8 | 0.8 |
| 1,2,4-TRIMETHYLBENZENE | 11.0 | 12.5 | 6.8 | 17.5 | 12.4 | 20.2 | 32.7 | 7.3 |
| n-DECANE | 1.0 | 1.6 | 0.8 | 3.0 | 1.4 | 2.9 | 7.0 | 0.8 |
| 1,4-DIETHYLBENZENE | 1.3 | 1.9 | 0.9 | 2.8 | 1.8 | 3.5 | 5.8 | 0.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.1 | 2.0 | 1.8 | 2.0 | 1.7 | 1.9 | 5.7 | * |
| SUM OTHER AROMATICS | 22.5 | 33.6 | 18.3 | 27.8 | 24.3 | 30.1 | 54.3 | 13.4 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 7.0 | 21.9 | 6.1 | 37.7 | 13.4 | 33.6 | 46.0 | 4.3 |
| SUM UNKNOWNS | 1.3 | 1.5 | 2.7 | 0.3 | 5.2 | 0.9 | 0.9 | 3.1 |
| SUM PARAFFINS | 126.6 | 164.0 | 94.8 | 232.6 | 113.8 | 277.6 | 583.5 | 62.6 |
| SUM OLEFINS | 35.5 | 60.0 | 20.4 | 96.4 | 42.1 | 113.5 | 233.9 | 19.4 |
| SUM AROMATICS | 88.2 | 134.7 | 80.6 | 183.5 | 107.1 | 187.8 | 395.8 | 48.8 |
| SUM HYDROCARBONS | 258.9 | 382.3 | 204.8 | 550.7 | 282.1 | 613.6 | 1260.7 | 138.3 |

TABLE A- 7c. Hydrocarbon concentration data for BRIDGEPORT, CT

| Compound | ID Number and Sample Date<br>2913<br>86/09/22 |
|---|---|
| PARAFFINS | |
| ETHANE | 11.6 |
| PROPANE | 9.4 |
| ISOBUTANE | 10.3 |
| n-BUTANE | 17.6 |
| ISOPENTANE | 29.6 |
| n-PENTANE | 13.7 |
| 2,2-DIMETHYLBUTANE | 0.8 |
| CYCLOPENTANE | 1.2 |
| 2,3-DIMETHYLBUTANE | 2.7 |
| 2-METHYLPENTANE | 9.8 |
| 3-METHYLPENTANE | 6.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.7 |
| METHYLCYCLOPENTANE | 4.0 |
| 2,4-DIMETHYLPENTANE | 2.0 |
| CYCLOHEXANE | 0.8 |
| 2-METHYLHEXANE | 6.8 |
| 2,3-DIMETHYLPENTANE | * |
| 3-METHYLHEXANE | 4.1 |
| 2,2,4-TRIMETHYLPENTANE | 6.9 |
| n-HEPTANE | 3.3 |
| METHYLCYCLOHEXANE | 2.1 |
| 2,5-DIMETHYLHEXANE | 1.4 |
| 2,4-DIMETHYLHEXANE | 1.5 |
| 2,3,4-TRIMETHYLPENTANE | 3.1 |
| 2-METHYLHEPTANE | 1.3 |
| 3-METHYLHEPTANE | 2.1 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 |
| n-OCTANE | 1.6 |
| 2,4-DIMETHYLHEPTANE | 2.3 |
| 4-METHYLOCTANE | 1.5 |
| 3-METHYLOCTANE | 1.3 |
| n-NONANE | 1.3 |
| 4-METHYLNONANE | * |
| n-DECANE | 1.6 |
| SUM OTHER PARAFFINS | 14.7 |

| | |
|---|---|
| OLEFINS | |
| ETHYLENE | 31.2 |
| PROPENE | 7.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 7.4 |
| 1,3-BUTADIENE | 1.6 |
| t-2-BUTENE | 2.5 |
| c-2-BUTENE | 1.9 |
| 1-PENTENE | 1.5 |
| 2-METHYL-1-BUTENE | 2.5 |
| ISOPRENE | 1.1 |
| t-2-PENTENE | 2.4 |
| c-2-PENTENE | 4.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.7 |
| 2-METHYL-2-PENTENE | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.3 |
| a-PINENE | 0.2 |
| SUM OTHER OLEFINS | 18.6 |
| AROMATICS | |
| BENZENE | 13.8 |
| TOLUENE | 34.1 |
| ETHYLBENZENE | 6.0 |
| m&p-XYLENE | 21.4 |
| o-XYLENE | 8.4 |
| n-PROPYLBENZENE | 1.6 |
| m-ETHYLTOLUENE | 6.4 |
| p-ETHYLTOLUENE | 3.1 |
| 1,3,5-TRIMETHYLBENZENE | 3.7 |
| o-ETHYLTOLUENE | 3.1 |
| 1,2,4-TRIMETHYLBENZENE | 16.0 |
| n-DECANE | 2.1 |
| 1,4-DIETHYLBENZENE | 2.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.4 |
| SUM OTHER AROMATICS | 27.4 |
| SUMMARY | |
| ACETYLENE | 16.5 |
| SUM UNKNOWNS | 0.6 |
| SUM PARAFFINS | 184.7 |
| SUM OLEFINS | 86.9 |
| SUM AROMATICS | 151.7 |
| SUM HYDROCARBONS | 440.5 |

TABLE A- 8a. Hydrocarbon concentration data for BATON ROUGE, LA

| Compound | ID Number and Sample Date<br>1013<br>85/06/04 | 1141<br>85/06/13 | 1237<br>85/06/20 | 1303<br>85/06/27 | 1515<br>85/07/10 | 1644<br>85/07/17 | 1776<br>85/07/26 | 1925<br>85/08/05 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 53.8 | 20.0 | 26.1 | 53.3 | 58.0 | 6.4 | 47.9 | 33.9 |
| PROPANE | 52.9 | 15.5 | 27.2 | 59.0 | 59.6 | 7.8 | 41.0 | 71.0 |
| ISOBUTANE | 57.4 | 8.5 | 13.6 | 33.2 | 37.3 | 3.9 | 43.5 | 19.4 |
| n-BUTANE | 76.5 | 16.5 | 24.5 | 30.4 | 31.5 | 9.4 | 31.4 | 30.6 |
| ISOPENTANE | 69.8 | 16.8 | 23.4 | 23.3 | 23.3 | 3069.0 | 29.2 | 32.8 |
| n-PENTANE | 28.7 | 8.2 | 11.9 | 13.1 | 13.5 | 62.2 | 14.8 | 15.6 |
| 2,2-DIMETHYLBUTANE | 2.2 | 0.5 | 0.8 | 0.9 | 0.9 | 0.7 | 1.4 | 1.3 |
| CYCLOPENTANE | 1.7 | 0.5 | 1.4 | 1.0 | 0.9 | 0.5 | 1.0 | 1.1 |
| 2,3-DIMETHYLBUTANE | 5.2 | 1.6 | 2.1 | 1.8 | 1.8 | 1.0 | 2.6 | 3.1 |
| 2-METHYLPENTANE | 16.4 | 5.5 | 7.6 | 6.7 | 6.6 | 3.3 | 7.9 | 10.7 |
| 3-METHYLPENTANE | 11.9 | 5.0 | 4.6 | 4.3 | 3.8 | 3.0 | 5.4 | 7.9 |
| n-HEXANE, 2-ETHYL-1-BUTENE | 14.4 | 3.8 | 5.1 | 5.3 | 5.5 | 4.0 | 5.6 | 11.3 |
| METHYLCYCLOPENTANE | 7.1 | 2.5 | 3.3 | 3.5 | 3.6 | 9.5 | 3.8 | 6.0 |
| 2,4-DIMETHYLPENTANE | 3.9 | 1.2 | 1.6 | 1.0 | 0.8 | 0.4 | 1.3 | 1.9 |
| CYCLOHEXANE | 2.7 | 0.9 | 1.0 | 2.3 | 2.5 | 0.7 | 2.0 | 1.5 |
| 2-METHYLHEXANE | 3.8 | 1.7 | 2.2 | 4.4 | 4.0 | 2.3 | 6.0 | 6.4 |
| 2,3-DIMETHYLPENTANE | 4.5 | 1.6 | 2.1 | * | * | * | * | * |
| 3-METHYLHEXANE | 5.3 | * | 2.4 | 2.3 | 1.9 | 1.2 | 2.8 | 3.7 |
| 2,2,4-TRIMETHYLPENTANE | 7.3 | 3.5 | 5.5 | 2.6 | 1.8 | 2.3 | 3.5 | 5.7 |
| n-HEPTANE | 3.6 | 1.8 | 2.0 | 2.6 | 2.6 | 1.5 | 2.5 | 2.8 |
| METHYLCYCLOHEXANE | 4.4 | 1.7 | 2.0 | 4.1 | 3.7 | 1.4 | 3.7 | 2.9 |
| 2,5-DIMETHYLHEXANE | 1.2 | 1.2 | 1.0 | 0.7 | 0.5 | 0.5 | 0.9 | 1.2 |
| 2,4-DIMETHYLHEXANE | 1.6 | 1.7 | 1.2 | 0.5 | 0.4 | 0.5 | 0.8 | 1.2 |
| 2,3,4-TRIMETHYLPENTANE | 1.9 | 1.3 | 2.4 | 1.0 | 0.5 | 0.6 | 1.3 | 2.3 |
| 2-METHYLHEPTANE | 1.1 | 1.5 | 1.2 | 0.8 | 1.3 | 0.5 | 0.7 | 1.0 |
| 3-METHYLHEPTANE | 1.6 | 0.9 | 1.0 | 1.0 | 1.5 | 0.5 | 1.1 | 1.6 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 0.6 | 0.7 | 0.5 | 0.4 | 0.3 | 0.5 | 0.8 |
| n-OCTANE | 1.1 | 1.1 | 0.8 | 3.0 | 2.2 | 1.2 | 1.5 | 1.6 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | 0.7 | 0.5 | 2.1 | 2.0 | 0.4 | 0.6 | 1.1 |
| 3-METHYLOCTANE | 0.8 | 0.7 | 0.8 | 1.9 | 2.0 | 0.4 | 0.7 | 1.0 |
| n-NONANE | 30.6 | 1.7 | 0.7 | 3.7 | 4.5 | 70.8 | 1.4 | 1.6 |
| 4-METHYLNONANE | * | * | * | * | 1.8 | * | * | * |
| n-DECANE | 2.4 | 0.9 | 0.9 | 3.0 | 7.3 | 1.3 | 2.0 | 2.1 |
| SUM OTHER PARAFFINS | 48.0 | 98.3 | 14.7 | 29.7 | 49.6 | 219.1 | 17.3 | 24.7 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 17.4 | 8.6 | 11.4 | 10.7 | 9.3 | * | 8.8 | 12.7 |
| PROPENE | 17.0 | 2.6 | 3.1 | 3.1 | 3.9 | 2.0 | 2.4 | 4.0 |
| 2-METHYLPROPYLENE,BUTENE-1 | 15.4 | 5.2 | 3.4 | 0.3 | 3.1 | 1.2 | 2.4 | 3.7 |
| 1,3-BUTADIENE | 4.8 | 0.5 | 0.8 | 0.2 | 0.4 | 0.2 | 0.3 | 0.8 |
| t-2-BUTENE | 7.2 | 1.0 | 1.3 | * | 1.0 | 0.5 | 1.5 | 1.4 |
| c-2-BUTENE | 5.0 | 0.6 | 0.8 | 0.4 | 0.4 | 0.7 | 0.7 | 0.9 |
| 1-PENTENE | 2.8 | 1.0 | 0.6 | 0.4 | 0.4 | 10.3 | 0.6 | 0.8 |
| 2-METHYL-1-BUTENE | 6.4 | 0.7 | 1.0 | 0.5 | 0.5 | * | 0.9 | 1.6 |
| ISOPRENE | 2.3 | 1.2 | 4.1 | 1.2 | 1.0 | 22.4 | 0.9 | 3.1 |
| t-2-PENTENE | 3.6 | 0.8 | 1.3 | 0.5 | 0.6 | 38.0 | 1.1 | 1.4 |
| c-2-PENTENE | 3.6 | 0.7 | 1.7 | 0.8 | 0.7 | * | 1.4 | 1.8 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.9 | 0.9 | 0.3 | * | * | * | 0.1 | 0.2 |
| 2-METHYL-2-PENTENE | 0.9 | 0.3 | 0.4 | 0.2 | 0.2 | * | 0.4 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.3 | 0.8 | 1.3 | 0.8 | 0.6 | * | 0.1 | 0.6 |
| a-PINENE | 6.9 | 2.7 | 3.8 | 1.4 | 1.8 | 0.3 | 0.9 | 2.7 |
| SUM OTHER OLEFINS | 44.1 | 47.0 | 19.8 | 19.4 | 32.0 | 15.3 | 11.7 | 22.8 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 9.8 | 8.4 | 6.6 | 6.2 | 5.7 | 2.3 | 5.9 | 9.7 |
| TOLUENE | 24.6 | 16.8 | 14.9 | 14.2 | 9.4 | 4.8 | 12.8 | 20.9 |
| ETHYLBENZENE | 3.9 | 2.5 | 2.8 | 2.8 | 2.2 | 0.9 | 2.0 | 3.4 |
| m&p-XYLENE | 12.7 | 8.4 | 9.3 | 7.3 | 6.8 | 3.4 | 7.2 | 12.2 |
| o-XYLENE | 6.5 | 2.9 | 3.2 | 2.8 | 2.6 | 1.2 | 3.8 | 5.8 |
| n-PROPYLBENZENE | 1.5 | 0.7 | 0.5 | 0.6 | 0.7 | 0.2 | 0.5 | 0.7 |
| m-ETHYLTOLUENE | 5.2 | 2.3 | 2.7 | 2.1 | 1.4 | 0.6 | 2.1 | 3.3 |
| p-ETHYLTOLUENE | 1.9 | 3.1 | 1.3 | 1.9 | 2.8 | * | 1.2 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 2.1 | 1.2 | 1.4 | 1.8 | 1.4 | 0.4 | 1.8 | 2.3 |
| o-ETHYLTOLUENE | 3.1 | 1.8 | 1.4 | 1.6 | 2.7 | 0.6 | 1.1 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 5.5 | 3.7 | 4.5 | 4.3 | 4.1 | 1.7 | 4.3 | 6.0 |
| n-DECANE | * | 6.9 | * | 21.4 | 1.9 | 5.6 | 0.7 | 6.0 |
| 1,4-DIETHYLBENZENE | 1.6 | 1.1 | 1.3 | 1.4 | 1.5 | 0.4 | 0.9 | 1.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.0 | 1.6 | 1.1 | * | 2.5 | 1.1 | * | 1.2 |
| SUM OTHER AROMATICS | 242.5 | 29.4 | 47.4 | 29.7 | 26.1 | 7.2 | 16.1 | 15.3 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 38.3 | 8.0 | 8.2 | 4.8 | 4.3 | * | 4.4 | 8.5 |
| SUM UNKNOWNS | 35.3 | 2.5 | 23.9 | 4.8 | 5.7 | 173.3 | 1.7 | 2.5 |
| SUM PARAFFINS | 525.9 | 229.2 | 197.7 | 304.3 | 339.1 | 3487.9 | 287.6 | 311.1 |
| SUM OLEFINS | 140.3 | 75.2 | 55.8 | 40.4 | 56.5 | 91.4 | 34.8 | 59.6 |
| SUM AROMATICS | 325.5 | 91.3 | 99.0 | 98.8 | 72.3 | 31.0 | 61.0 | 92.9 |
| SUM HYDROCARBONS | 1067.6 | 406.9 | 385.2 | 453.2 | 478.1 | 3784.1 | 389.6 | 474.8 |

TABLE A- 8b. Hydrocarbon concentration data for BATON ROUGE, LA

|  | ID Number and Sample Date |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| Compound | 2099 85/08/16 | 2151CS0 85/08/20 | 2239 85/08/26 | 2341 85/09/03 | 2418RA0 85/09/09 | 2445 85/09/11 | 2517 85/09/17 | 2630 85/09/26 |
| PARAFFINS |  |  |  |  |  |  |  |  |
| ETHANE | 15.0 | 78.2 | 61.7 | 65.5 | 42.0 | 23.0 | 22.8 | 30.1 |
| PROPANE | 13.6 | 50.1 | 90.1 | 45.2 | 36.2 | 24.2 | 31.8 | 43.0 |
| ISOBUTANE | 10.4 | 40.6 | 77.2 | 19.8 | 23.7 | 11.9 | 16.1 | 22.1 |
| n-BUTANE | 20.6 | 58.2 | 158.5 | 32.1 | 54.2 | 27.9 | 28.5 | 99.6 |
| ISOPENTANE | 16.9 | 44.5 | 143.3 | 26.2 | 55.9 | 30.0 | 27.3 | 77.1 |
| n-PENTANE | 8.0 | 23.7 | 58.4 | 13.6 | 24.7 | 13.5 | 13.0 | 37.8 |
| 2,2-DIMETHYLBUTANE | 0.4 | 2.0 | 4.7 | 1.1 | 2.2 | 1.4 | 1.1 | 2.2 |
| CYCLOPENTANE | 0.6 | 1.7 | 5.0 | 1.0 | 1.9 | 1.0 | 0.8 | 3.1 |
| 2,3-DIMETHYLBUTANE | 2.2 | 4.9 | 11.1 | 2.6 | 5.9 | 3.2 | 2.4 | 6.4 |
| 2-METHYLPENTANE | 5.5 | 17.1 | 37.7 | 8.4 | 18.6 | 10.0 | 8.5 | 20.5 |
| 3-METHYLPENTANE | 5.0 | 17.6 | 24.4 | 4.9 | 11.5 | 6.4 | 5.9 | 13.0 |
| n-HEXANE, 2-ETHYL-1-BUTENE | 6.9 | 39.6 | 36.6 | 6.0 | 11.7 | 5.9 | 5.2 | 20.9 |
| METHYLCYCLOPENTANE | 2.7 | 13.7 | 38.7 | 3.9 | 7.6 | 3.9 | 3.3 | 10.0 |
| 2,4-DIMETHYLPENTANE | 2.0 | 3.4 | 5.9 | 1.8 | 4.5 | 2.4 | 1.6 | 3.9 |
| CYCLOHEXANE | 0.8 | 3.7 | 5.1 | 1.6 | 1.8 | 1.0 | 0.8 | 3.9 |
| 2-METHYLHEXANE | * | * | 11.5 | 6.4 | 6.4 | 5.4 | 8.4 | 13.8 |
| 2,3-DIMETHYLPENTANE | 6.0 | 10.1 | 7.6 | * | 7.1 | 4.7 | * | * |
| 3-METHYLHEXANE | 1.8 | 4.3 | 10.3 | 2.8 | 5.9 | 3.6 | 2.8 | 7.2 |
| 2,2,4-TRIMETHYLPENTANE | 5.9 | 10.2 | 18.0 | 4.6 | 14.8 | 7.2 | 4.7 | 8.8 |
| n-HEPTANE | 1.7 | 3.5 | 9.1 | 2.5 | 4.5 | 2.3 | 2.9 | 13.0 |
| METHYLCYCLOHEXANE | 1.3 | 5.2 | 8.4 | 2.9 | 3.7 | 2.5 | 2.1 | 8.0 |
| 2,5-DIMETHYLHEXANE | 1.1 | 1.8 | 3.2 | 1.1 | 2.6 | 1.5 | 0.2 | 2.5 |
| 2,4-DIMETHYLHEXANE | 1.1 | 2.0 | 3.1 | 1.0 | 2.8 | 1.5 | 0.8 | 2.7 |
| 2,3,4-TRIMETHYLPENTANE | 2.9 | 4.2 | 5.3 | 2.2 | 5.8 | 3.3 | 2.1 | 3.4 |
| 2-METHYLHEPTANE | 0.5 | 1.6 | 3.8 | 0.7 | 2.4 | 0.9 | 1.1 | 6.7 |
| 3-METHYLHEPTANE | 0.9 | 1.8 | 4.1 | 1.3 | 2.7 | 1.5 | 1.1 | 4.1 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 2.2 | 2.6 | 0.7 | 2.1 | 1.1 | 0.7 | 1.4 |
| n-OCTANE | 0.7 | 2.5 | 5.2 | 1.4 | 3.0 | 1.8 | 1.0 | 9.3 |
| 2,4-DIMETHYLHEPTANE | * | * | 1.8 | 1.4 | 2.0 | 0.6 | 0.9 | 1.1 |
| 4-METHYLOCTANE | 0.4 | 1.1 | 2.7 | 0.6 | 1.6 | 0.9 | 0.5 | 4.3 |
| 3-METHYLOCTANE | 0.5 | 0.8 | 1.8 | 0.6 | 1.1 | 0.5 | 0.6 | 3.0 |
| n-NONANE | 0.8 | 2.0 | 3.8 | 0.8 | 1.8 | 1.1 | 0.8 | 8.2 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | 1.5 |
| n-DECANE | 0.9 | 3.6 | 3.4 | 0.9 | 3.6 | 2.2 | 1.6 | 7.7 |
| SUM OTHER PARAFFINS | 8.5 | 102.8 | 41.1 | 16.8 | 20.2 | 12.3 | 9.4 | 45.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 12.9 | 59.9 | 65.2 | 11.6 | 28.2 | 13.3 | 15.8 | 11.7 |
| PROPENE | 6.5 | * | 27.6 | 4.2 | 10.6 | 4.2 | 3.7 | 8.8 |
| 2-METHYLPROPYLENE,BUTENE-1 | * | 4.8 | 1.0 | 3.5 | 11.1 | 4.0 | 3.9 | 7.3 |
| 1,3-BUTADIENE | 1.2 | 1.5 | 2.1 | 1.3 | 2.2 | 0.6 | 0.8 | 1.2 |
| t-2-BUTENE | 1.1 | 2.0 | 10.9 | 1.5 | 4.2 | 1.7 | 1.2 | 3.9 |
| c-2-BUTENE | 0.7 | 1.1 | 7.7 | 0.9 | 2.7 | 1.2 | 0.7 | 2.7 |
| 1-PENTENE | 0.6 | 1.1 | 4.7 | * | 1.9 | 0.9 | 0.6 | 2.8 |
| 2-METHYL-1-BUTENE | 1.1 | 1.7 | 6.6 | 1.1 | 3.3 | 1.5 | 1.0 | 3.1 |
| ISOPRENE | 0.4 | 2.2 | 1.9 | 1.0 | 2.1 | 1.2 | 1.7 | 0.7 |
| t-2-PENTENE | 1.4 | 2.0 | 8.6 | 1.4 | 4.0 | 2.1 | 1.1 | 4.3 |
| c-2-PENTENE | 1.8 | 3.2 | 9.1 | 1.9 | 5.2 | 2.6 | 1.6 | 4.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.2 | 0.2 | 2.3 | 1.7 | 0.8 | 0.4 | 0.2 | 0.7 |
| 2-METHYL-2-PENTENE | 0.5 | 0.8 | 2.4 | 0.5 | 1.9 | 1.0 | 0.5 | 1.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.3 | 1.0 | 1.3 | 0.9 | 1.4 | 0.7 | 0.5 | 1.3 |
| a-PINENE | 0.2 | 0.3 | 0.4 | 1.4 | 1.8 | 2.2 | 1.3 | 1.5 |
| SUM OTHER OLEFINS | 7.3 | 17.6 | 40.4 | 13.7 | 23.3 | 8.7 | 11.4 | 21.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 4.8 | 13.2 | 23.4 | 8.2 | 16.3 | 10.5 | 5.7 | 15.5 |
| TOLUENE | 12.7 | 32.8 | 93.0 | 20.3 | 40.7 | 24.9 | 16.0 | 31.7 |
| ETHYLBENZENE | 1.9 | 4.4 | 20.1 | 3.3 | 7.8 | 4.2 | 2.8 | 5.0 |
| m&p-XYLENE | 6.2 | 13.6 | 71.6 | 9.3 | 23.9 | 14.4 | 9.2 | 16.3 |
| o-XYLENE | 3.5 | 5.4 | 27.4 | 4.2 | 8.8 | 5.3 | 4.1 | 5.9 |
| n-PROPYLBENZENE | 0.4 | 0.7 | 1.1 | 0.6 | 1.9 | 0.8 | 0.6 | 1.1 |
| m-ETHYLTOLUENE | 1.6 | 2.9 | 4.0 | 2.4 | 6.3 | 3.8 | 2.8 | 3.6 |
| p-ETHYLTOLUENE | 0.5 | 1.0 | 1.5 | 1.2 | 3.0 | 1.8 | 1.4 | 2.5 |
| 1,3,5-TRIMETHYLBENZENE | 1.0 | 1.8 | 2.6 | 1.5 | 3.7 | 2.3 | 1.7 | 2.3 |
| o-ETHYLTOLUENE | 0.9 | 2.1 | 2.7 | 1.1 | 2.9 | 1.8 | 1.2 | 3.1 |
| 1,2,4-TRIMETHYLBENZENE | * | 4.2 | 4.8 | 4.3 | 18.2 | 11.0 | 6.0 | 8.7 |
| n-DECANE | 0.5 | 1.3 | 2.8 | 0.8 | 1.5 | 1.0 | 0.6 | 1.4 |
| 1,4-DIETHYLBENZENE | 1.0 | 1.7 | 2.1 | 1.0 | 2.1 | 1.3 | 0.9 | 1.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.8 | * | 2.2 | 0.6 | * | * | 0.7 | * |
| SUM OTHER AROMATICS | 13.7 | 19.8 | 28.7 | 13.8 | 21.9 | 17.3 | 10.5 | 24.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 10.4 | 29.0 | 26.8 | 7.5 | 26.6 | 10.6 | 8.2 | 7.2 |
| SUM UNKNOWNS | 1.6 | 10.6 | 7.1 | 3.6 | 4.5 | 1.9 | 2.0 | 4.4 |
| SUM PARAFFINS | 147.9 | 560.3 | 906.3 | 283.9 | 397.8 | 221.8 | 212.4 | 547.3 |
| SUM OLEFINS | 36.8 | 100.0 | 192.9 | 47.1 | 105.2 | 47.0 | 46.6 | 78.3 |
| SUM AROMATICS | 50.0 | 105.5 | 288.7 | 73.3 | 159.7 | 100.9 | 64.8 | 123.3 |
| SUM HYDROCARBONS | 247.3 | 806.0 | 1429.1 | 415.6 | 694.0 | 382.4 | 334.1 | 760.7 |

TABLE A- 9a. Hydrocarbon concentration data for BRONX, NY

| Compound | ID Number and Sample Date<br>1272<br>86/06/18 | 1364<br>86/06/24 | 1421<br>86/06/26 | 1467<br>86/06/30 | 1654<br>86/07/11 | 1761<br>86/07/17 | 1778<br>86/07/18 | 1891<br>86/07/24 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 4.6 | 43.2 | 15.3 | 7.8 | 6.4 | 23.5 | 20.6 | 33.2 |
| PROPANE | 3.9 | 38.8 | 14.3 | 8.6 | 4.0 | 20.0 | 17.0 | 30.8 |
| ISOBUTANE | 6.8 | 68.9 | 18.7 | 5.1 | 8.6 | 36.4 | 26.7 | 53.6 |
| n-BUTANE | 11.8 | 115.4 | 32.9 | 48.2 | 18.5 | 74.3 | 46.0 | 92.7 |
| ISOPENTANE | 15.3 | 141.2 | 40.2 | 12.4 | 24.1 | 92.6 | 55.6 | 111.1 |
| n-PENTANE | 6.0 | 56.3 | 15.7 | 4.9 | 8.3 | 35.6 | 23.5 | 41.5 |
| 2,2-DIMETHYLBUTANE | 0.5 | 4.8 | 1.1 | * | 0.5 | 2.2 | 1.4 | 3.6 |
| CYCLOPENTANE | 0.4 | 4.6 | 1.4 | 0.3 | 0.6 | 3.2 | 2.0 | 4.0 |
| 2,3-DIMETHYLBUTANE | 1.2 | 10.1 | 2.9 | 0.9 | 1.6 | 6.5 | 3.6 | 7.7 |
| 2-METHYLPENTANE | 4.5 | 44.8 | 12.7 | 4.4 | 5.6 | 22.9 | 12.6 | 32.1 |
| 3-METHYLPENTANE | 4.2 | 23.4 | 6.6 | 2.3 | 3.3 | 14.3 | 7.8 | 18.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 2.7 | 21.6 | 7.5 | 3.1 | 3.0 | 11.3 | 6.9 | 14.6 |
| METHYLCYCLOPENTANE | 1.7 | 13.7 | 4.3 | 1.7 | 2.1 | 8.2 | 4.8 | 10.2 |
| 2,4-DIMETHYLPENTANE | 0.8 | 6.3 | 2.1 | 0.6 | 1.0 | 4.0 | 2.1 | 4.4 |
| CYCLOHEXANE | 0.2 | 4.3 | 2.3 | 0.4 | 0.3 | 1.6 | 1.3 | 2.5 |
| 2-METHYLHEXANE | 1.7 | 13.6 | 10.7 | 4.5 | 1.6 | 15.0 | 10.0 | 9.8 |
| 2,3-DIMETHYLPENTANE | 2.4 | 10.5 | * | * | 1.5 | * | * | 6.4 |
| 3-METHYLHEXANE | 1.8 | 13.8 | 6.5 | 1.4 | 2.1 | 8.3 | 5.5 | 9.7 |
| 2,2,4-TRIMETHYLPENTANE | 2.9 | 23.6 | 7.5 | 3.1 | 3.3 | 16.5 | 7.5 | 14.2 |
| n-HEPTANE | 1.3 | 11.9 | 8.3 | 1.4 | 1.1 | 7.4 | 5.3 | 6.3 |
| METHYLCYCLOHEXANE | 1.1 | 8.1 | 3.7 | 0.8 | 0.9 | 3.6 | 3.3 | 5.5 |
| 2,5-DIMETHYLHEXANE | 0.6 | 4.5 | 1.9 | 0.5 | 0.1 | 2.7 | 1.6 | 3.0 |
| 2,4-DIMETHYLHEXANE | 0.6 | 5.0 | 1.5 | 0.5 | 0.7 | 2.9 | 1.5 | 3.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.4 | 8.1 | 2.8 | 0.7 | 1.8 | 5.8 | 2.8 | 5.7 |
| 2-METHYLHEPTANE | 1.6 | 6.3 | 2.6 | 1.7 | 0.4 | 5.5 | 1.0 | 5.0 |
| 3-METHYLHEPTANE | 1.3 | 6.7 | 2.1 | 1.1 | 1.0 | 4.4 | 1.8 | 5.0 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 3.0 | 1.1 | 0.7 | 0.5 | 2.4 | 1.3 | 2.4 |
| n-OCTANE | 5.5 | * | * | 1.9 | 6.6 | * | * | * |
| 2,4-DIMETHYLHEPTANE | 1.8 | 1.9 | 3.8 | * | 0.7 | 1.0 | 0.5 | 0.7 |
| 4-METHYLOCTANE | 0.9 | 5.7 | 2.8 | 3.0 | 0.9 | 3.6 | 1.6 | 4.4 |
| 3-METHYLOCTANE | 1.2 | 4.5 | 1.9 | 3.0 | 0.6 | 2.2 | 1.6 | 3.5 |
| n-NONANE | 1.3 | 11.0 | 5.2 | 14.6 | 1.2 | 4.2 | 2.7 | 8.4 |
| 4-METHYLNONANE | * | 3.9 | * | 5.8 | * | * | 1.0 | 2.8 |
| n-DECANE | 2.5 | 23.8 | 9.0 | 37.9 | 2.9 | 10.5 | 6.3 | 17.1 |
| SUM OTHER PARAFFINS | 12.5 | 124.1 | 52.3 | 115.3 | 11.0 | 80.6 | 34.2 | 87.7 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 7.4 | 51.1 | 23.0 | 7.2 | 10.9 | 34.6 | 23.6 | 41.4 |
| PROPENE | 3.3 | 20.7 | 9.5 | 2.6 | 3.7 | 11.0 | 8.8 | 15.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.1 | 25.2 | 7.7 | 2.9 | 4.6 | 12.2 | 8.1 | 18.3 |
| 1,3-BUTADIENE | 0.3 | 3.6 | 1.5 | 0.2 | 0.7 | 0.9 | 0.7 | 0.9 |
| t-2-BUTENE | 0.9 | 13.5 | 3.1 | 0.6 | 1.7 | 5.2 | 3.0 | 9.0 |
| c-2-BUTENE | 0.8 | 10.9 | 2.4 | 0.5 | 1.3 | 5.1 | 2.6 | 8.0 |
| 1-PENTENE | 0.2 | 6.1 | 1.5 | * | 1.1 | 3.7 | 2.0 | 4.4 |
| 2-METHYL-1-BUTENE | 0.8 | 12.0 | 1.7 | * | 1.4 | 4.2 | 2.0 | 9.9 |
| ISOPRENE | * | 3.9 | 1.5 | 0.7 | 2.0 | 2.8 | 1.6 | 2.4 |
| t-2-PENTENE | 0.3 | 11.4 | 2.3 | * | 1.5 | 5.3 | 2.4 | 7.1 |
| c-2-PENTENE | 1.5 | 15.0 | 4.4 | 1.4 | 2.0 | 7.7 | 3.3 | 17.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.1 | 9.6 | 5.1 | 0.0 | 0.2 | 4.8 | 1.7 | 3.3 |
| 2-METHYL-2-PENTENE | 0.4 | 4.6 | 1.0 | * | 0.4 | 2.2 | 0.8 | 2.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 | 5.1 | 2.1 | 3.1 | 0.6 | 3.1 | 1.6 | 4.4 |
| a-PINENE | 1.7 | 3.6 | 1.7 | 10.7 | 0.2 | 1.5 | 0.8 | 2.1 |
| SUM OTHER OLEFINS | 5.6 | 55.5 | 13.9 | 7.0 | 7.2 | 23.5 | 15.6 | 33.8 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 5.8 | 38.4 | 13.4 | 5.0 | 6.4 | 23.4 | 13.4 | 23.3 |
| TOLUENE | 40.8 | 131.8 | 65.8 | 19.6 | 20.1 | 78.2 | 49.5 | 92.8 |
| ETHYLBENZENE | 2.9 | 18.4 | 8.6 | 4.4 | 3.0 | 11.7 | 6.8 | 12.8 |
| m&p-XYLENE | 11.0 | 59.0 | 27.7 | 16.7 | 10.5 | 36.6 | 20.3 | 40.0 |
| o-XYLENE | 4.8 | 23.5 | 10.4 | 7.6 | 6.8 | 14.8 | 8.3 | 16.6 |
| n-PROPYLBENZENE | 0.7 | 5.6 | 2.7 | 2.2 | 0.7 | 3.6 | 1.8 | 4.0 |
| m-ETHYLTOLUENE | 2.7 | 16.1 | 5.9 | 5.2 | 2.9 | 9.6 | 5.4 | 11.1 |
| p-ETHYLTOLUENE | 1.5 | 9.7 | 3.8 | 5.9 | 1.6 | 5.3 | 3.2 | 7.1 |
| 1,3,5-TRIMETHYLBENZENE | 1.9 | 8.7 | 4.8 | 4.4 | 1.9 | 6.4 | 2.5 | 6.3 |
| o-ETHYLTOLUENE | 1.8 | 10.0 | 3.9 | 15.8 | 1.5 | 5.4 | 3.1 | 6.8 |
| 1,2,4-TRIMETHYLBENZENE | 12.3 | 34.7 | 16.3 | 27.8 | 13.6 | 23.7 | 13.0 | 27.7 |
| n-DECANE | 0.9 | 8.9 | 3.6 | 7.8 | 0.9 | 6.9 | 2.3 | 6.3 |
| 1,4-DIETHYLBENZENE | 0.9 | 8.5 | 3.3 | 6.6 | 1.1 | 5.4 | 2.0 | 4.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 12.8 | 6.0 | 23.8 | 1.7 | 8.3 | 4.3 | 9.7 |
| SUM OTHER AROMATICS | 20.9 | 111.4 | 40.9 | 176.4 | 17.6 | 47.9 | 24.9 | 79.8 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 5.7 | 40.4 | 16.4 | 5.0 | 9.0 | 27.1 | 14.2 | 24.5 |
| SUM UNKNOWNS | 3.0 | 8.6 | 0.8 | 46.6 | 4.5 | 1.4 | 1.6 | 6.1 |
| SUM PARAFFINS | 108.8 | 888.7 | 303.3 | 299.9 | 128.2 | 534.9 | 322.9 | 662.4 |
| SUM OLEFINS | 29.4 | 252.4 | 82.9 | 37.3 | 40.4 | 128.5 | 79.3 | 181.1 |
| SUM AROMATICS | 109.5 | 498.0 | 217.7 | 329.9 | 90.9 | 287.7 | 161.5 | 349.6 |
| SUM HYDROCARBONS | 256.6 | 1688.3 | 621.3 | 718.9 | 273.2 | 979.8 | 579.5 | 1223.8 |

TABLE A- 9b. Hydrocarbon concentration data for BRONX, NY

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1974<br>86/07/29 | 2159<br>86/08/07 | 2160<br>86/08/08 | 2250<br>86/08/13 | 2373<br>86/08/20 | 2481<br>86/08/26 | 2633<br>86/09/04 | 2671<br>86/09/08 |
| PARAFFINS | | | | | | | | |
| ETHANE | 17.2 | 11.3 | 30.7 | 11.1 | 7.5 | 26.9 | 7.8 | 10.4 |
| PROPANE | 15.7 | 8.4 | 28.9 | 9.2 | 6.8 | 15.1 | 6.9 | 7.1 |
| ISOBUTANE | 27.0 | 12.8 | 37.7 | 15.5 | 8.4 | 24.5 | 9.2 | 14.8 |
| n-BUTANE | 54.8 | 25.2 | 73.8 | 31.8 | 15.7 | 48.9 | 17.9 | 29.5 |
| ISOPENTANE | 65.9 | 32.4 | 96.8 | 41.7 | 21.2 | 64.2 | 22.3 | 39.4 |
| n-PENTANE | 22.5 | 5.4 | 34.1 | 13.2 | 7.2 | 20.9 | 4.9 | 13.5 |
| 2,2-DIMETHYLBUTANE | 1.8 | 1.1 | 3.7 | 1.2 | 0.7 | 2.1 | 0.8 | 1.5 |
| CYCLOPENTANE | 1.9 | 0.8 | 3.3 | 1.0 | 0.6 | 2.1 | 0.8 | 1.3 |
| 2,3-DIMETHYLBUTANE | 4.7 | 2.3 | 7.2 | 2.6 | 1.5 | 4.9 | 1.7 | 3.4 |
| 2-METHYLPENTANE | 15.7 | 7.9 | 26.3 | 9.0 | 5.4 | 16.3 | 6.2 | 11.3 |
| 3-METHYLPENTANE | 11.0 | 5.0 | 15.5 | 6.6 | 4.1 | 11.2 | 4.2 | 7.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.2 | 4.2 | 13.8 | 4.7 | 2.9 | 8.8 | 3.5 | 6.1 |
| METHYLCYCLOPENTANE | 6.2 | 3.1 | 9.6 | 3.3 | 2.0 | 6.2 | 2.3 | 4.5 |
| 2,4-DIMETHYLPENTANE | 2.9 | 1.3 | 4.1 | 1.6 | 0.9 | 3.1 | 1.2 | 2.4 |
| CYCLOHEXANE | 1.0 | 0.5 | 1.8 | 0.5 | 0.2 | 1.0 | 0.2 | 0.7 |
| 2-METHYLHEXANE | 9.9 | 2.9 | 9.7 | 5.7 | 3.4 | 6.5 | 2.3 | 4.5 |
| 2,3-DIMETHYLPENTANE | * | 3.2 | * | * | * | 5.7 | 1.7 | 4.0 |
| 3-METHYLHEXANE | 5.6 | 3.1 | 9.9 | 3.1 | 2.2 | 6.2 | 2.3 | 4.6 |
| 2,2,4-TRIMETHYLPENTANE | 9.7 | 5.2 | 15.1 | 5.6 | 3.4 | 11.0 | 4.6 | 9.3 |
| n-HEPTANE | 3.5 | 3.0 | 7.0 | 2.9 | 1.5 | 4.7 | 2.2 | 4.0 |
| METHYLCYCLOHEXANE | 2.9 | 1.9 | 5.1 | 1.5 | 1.0 | 3.0 | 1.3 | 2.3 |
| 2,5-DIMETHYLHEXANE | 2.2 | 1.1 | 3.1 | 0.4 | 0.4 | 2.4 | 0.4 | 0.6 |
| 2,4-DIMETHYLHEXANE | 2.0 | 1.1 | 3.3 | 1.1 | 0.5 | 2.3 | 0.8 | 1.9 |
| 2,3,4-TRIMETHYLPENTANE | 3.6 | 2.0 | 5.7 | 2.1 | 1.3 | 4.5 | 1.6 | 3.5 |
| 2-METHYLHEPTANE | 1.3 | 2.1 | 5.1 | 0.8 | * | 2.7 | * | 1.1 |
| 3-METHYLHEPTANE | 2.4 | 1.6 | 5.4 | 1.4 | 0.8 | 2.6 | 0.9 | 2.4 |
| 2,2,5-TRIMETHYLHEXANE | 1.7 | 0.7 | 2.4 | 0.9 | 0.6 | 1.4 | 0.8 | 1.6 |
| n-OCTANE | * | * | * | 15.9 | 13.1 | * | 12.0 | 3.2 |
| 2,4-DIMETHYLHEPTANE | 0.9 | 0.6 | 1.6 | 2.5 | 0.5 | 0.9 | 0.4 | 1.2 |
| 4-METHYLOCTANE | 2.8 | 1.5 | 4.6 | 1.6 | 1.1 | 2.0 | 1.4 | 2.5 |
| 3-METHYLOCTANE | 1.8 | 1.4 | 3.7 | 1.1 | 0.8 | 2.1 | 1.0 | 1.6 |
| n-NONANE | 2.9 | 3.2 | 7.7 | * | 1.3 | 2.8 | 1.7 | 3.2 |
| 4-METHYLNONANE | * | 1.3 | 2.6 | * | * | * | * | 1.6 |
| n-DECANE | 7.7 | 7.5 | 15.8 | 3.4 | 3.4 | 8.4 | 3.5 | 8.0 |
| SUM OTHER PARAFFINS | 40.0 | 28.3 | 78.1 | 11.9 | 10.0 | 39.7 | 13.0 | 27.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 23.2 | 13.6 | 36.7 | 14.2 | 8.8 | 29.9 | 11.2 | 22.2 |
| PROPENE | 7.8 | 4.0 | 12.0 | 4.9 | 2.6 | 10.6 | 3.3 | 8.3 |
| 2-METHYLPROPYLENE,BUTENE-1 | 9.7 | 4.6 | 14.4 | 6.0 | 3.0 | 9.8 | 3.6 | 8.1 |
| 1,3-BUTADIENE | 0.5 | 0.1 | 1.0 | 0.6 | * | 1.2 | * | 1.4 |
| t-2-BUTENE | 3.5 | 1.3 | 6.0 | 2.9 | 0.8 | 4.7 | 1.0 | 3.2 |
| c-2-BUTENE | 4.0 | 1.3 | 5.8 | 2.4 | 0.8 | 4.1 | 1.1 | 2.6 |
| 1-PENTENE | 2.9 | 0.5 | 3.9 | 1.6 | 0.2 | 2.9 | 0.4 | 1.9 |
| 2-METHYL-1-BUTENE | 4.5 | 0.6 | 6.2 | 2.5 | 0.2 | 4.6 | 0.5 | 2.9 |
| ISOPRENE | 4.0 | 0.5 | 1.9 | 2.3 | 0.4 | 3.2 | 0.3 | 0.4 |
| t-2-PENTENE | 4.2 | 0.3 | 6.2 | 2.6 | 1.8 | 5.0 | 0.2 | 3.5 |
| c-2-PENTENE | 6.4 | * | 9.0 | 3.5 | 2.4 | 7.2 | 2.0 | 5.6 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.8 | * | 3.7 | 0.4 | 0.2 | 0.8 | 0.3 | 0.7 |
| 2-METHYL-2-PENTENE | 1.6 | 0.6 | 2.4 | 0.9 | 0.4 | 2.3 | 0.6 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.3 | 1.0 | 3.2 | 0.9 | 1.2 | 1.6 | 1.4 | 1.9 |
| a-PINENE | 1.0 | 0.9 | 6.7 | 0.8 | * | 0.8 | * | * |
| SUM OTHER OLEFINS | 19.1 | 9.2 | 26.0 | 10.3 | 5.4 | 25.4 | 6.7 | 16.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 15.1 | 8.5 | 24.8 | 8.8 | 5.7 | 17.5 | 7.0 | 13.8 |
| TOLUENE | 57.6 | 34.1 | 90.3 | 33.1 | 23.3 | 65.1 | 23.5 | 56.3 |
| ETHYLBENZENE | 8.1 | 5.0 | 13.6 | 4.3 | 2.9 | 9.0 | 3.2 | 6.9 |
| m&p-XYLENE | 25.6 | 16.3 | 43.8 | 14.9 | 10.7 | 29.3 | 12.1 | 23.5 |
| o-XYLENE | 9.8 | 7.2 | 17.1 | 6.0 | 4.4 | 11.9 | 4.5 | 8.6 |
| n-PROPYLBENZENE | 2.2 | 1.4 | 4.4 | 0.8 | 0.6 | 2.5 | 1.0 | 2.3 |
| m-ETHYLTOLUENE | 7.2 | 4.8 | 12.6 | 4.2 | 2.7 | 8.6 | 3.5 | 7.2 |
| p-ETHYLTOLUENE | 3.9 | 2.9 | 7.7 | 2.3 | 1.5 | 4.8 | 2.0 | 4.3 |
| 1,3,5-TRIMETHYLBENZENE | 3.2 | 2.6 | 6.6 | 3.2 | 2.0 | 5.8 | 2.6 | 3.7 |
| o-ETHYLTOLUENE | 3.9 | 3.0 | 6.7 | 2.2 | 1.9 | 4.4 | 2.0 | 4.0 |
| 1,2,4-TRIMETHYLBENZENE | 20.2 | 15.7 | 29.8 | 12.0 | 9.8 | 20.5 | 10.0 | 18.5 |
| n-DECANE | 2.4 | 1.6 | 6.1 | 1.7 | 0.9 | 3.5 | 1.2 | 2.6 |
| 1,4-DIETHYLBENZENE | 2.9 | 2.5 | 7.3 | 2.2 | 1.0 | 4.5 | 1.4 | 2.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 5.0 | 4.2 | 9.5 | 2.5 | 2.5 | 4.9 | 2.2 | 3.2 |
| SUM OTHER AROMATICS | 33.5 | 35.8 | 101.4 | 25.1 | 18.8 | 62.2 | 17.7 | 36.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 21.6 | 12.6 | 32.1 | 12.6 | 8.3 | 27.0 | 9.5 | 24.7 |
| SUM UNKNOWNS | 1.2 | 3.3 | 10.9 | 1.7 | 1.6 | 0.7 | 2.7 | 2.1 |
| SUM PARAFFINS | 358.8 | 194.8 | 574.4 | 216.1 | 131.6 | 366.5 | 143.1 | 243.3 |
| SUM OLEFINS | 96.2 | 39.0 | 145.7 | 57.6 | 28.9 | 114.9 | 33.4 | 81.1 |
| SUM AROMATICS | 201.1 | 146.3 | 382.2 | 123.8 | 89.4 | 255.2 | 94.5 | 194.7 |
| SUM HYDROCARBONS | 679.1 | 396.1 | 1145.5 | 412.0 | 260.4 | 764.5 | 283.3 | 546.1 |

TABLE A- 9c. Hydrocarbon concentration data for BRONX, NY

| Compound | ID Number and Sample Date |
|---|---|
| | 2960<br>86/09/26 |
| PARAFFINS | |
| ETHANE | 41.6 |
| PROPANE | 35.2 |
| ISOBUTANE | 43.8 |
| n-BUTANE | 80.1 |
| ISOPENTANE | 84.0 |
| n-PENTANE | 30.2 |
| 2,2-DIMETHYLBUTANE | 3.0 |
| CYCLOPENTANE | 3.0 |
| 2,3-DIMETHYLBUTANE | 6.3 |
| 2-METHYLPENTANE | 21.2 |
| 3-METHYLPENTANE | 13.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.0 |
| METHYLCYCLOPENTANE | 15.1 |
| 2,4-DIMETHYLPENTANE | 4.2 |
| CYCLOHEXANE | 1.9 |
| 2-METHYLHEXANE | 10.8 |
| 2,3-DIMETHYLPENTANE | * |
| 3-METHYLHEXANE | 9.7 |
| 2,2,4-TRIMETHYLPENTANE | 13.6 |
| n-HEPTANE | 7.9 |
| METHYLCYCLOHEXANE | 4.8 |
| 2,5-DIMETHYLHEXANE | 2.8 |
| 2,4-DIMETHYLHEXANE | 2.9 |
| 2,3,4-TRIMETHYLPENTANE | 5.9 |
| 2-METHYLHEPTANE | 4.4 |
| 3-METHYLHEPTANE | 4.5 |
| 2,2,5-TRIMETHYLHEXANE | 3.4 |
| n-OCTANE | 4.1 |
| 2,4-DIMETHYLHEPTANE | * |
| 4-METHYLOCTANE | 3.8 |
| 3-METHYLOCTANE | 4.1 |
| n-NONANE | 8.4 |
| 4-METHYLNONANE | * |
| n-DECANE | 25.1 |
| SUM OTHER PARAFFINS | 131.6 |

OLEFINS

| | |
|---|---|
| ETHYLENE | 41.5 |
| PROPENE | 18.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 19.2 |
| 1,3-BUTADIENE | 2.7 |
| t-2-BUTENE | 10.5 |
| c-2-BUTENE | 7.7 |
| 1-PENTENE | 6.5 |
| 2-METHYL-1-BUTENE | 6.4 |
| ISOPRENE | 1.9 |
| t-2-PENTENE | 7.6 |
| c-2-PENTENE | 14.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 3.1 |
| 2-METHYL-2-PENTENE | 3.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.9 |
| a-PINENE | 6.4 |
| SUM OTHER OLEFINS | 58.4 |

AROMATICS

| | |
|---|---|
| BENZENE | 23.6 |
| TOLUENE | 90.0 |
| ETHYLBENZENE | 13.7 |
| m&p-XYLENE | 46.0 |
| o-XYLENE | 20.0 |
| n-PROPYLBENZENE | 4.8 |
| m-ETHYLTOLUENE | 14.1 |
| p-ETHYLTOLUENE | 9.4 |
| 1,3,5-TRIMETHYLBENZENE | 10.6 |
| o-ETHYLTOLUENE | 8.1 |
| 1,2,4-TRIMETHYLBENZENE | 33.6 |
| n-DECANE | 7.5 |
| 1,4-DIETHYLBENZENE | 5.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 13.2 |
| SUM OTHER AROMATICS | 164.5 |

SUMMARY

| | |
|---|---|
| ACETYLENE | 25.4 |
| SUM UNKNOWNS | 5.7 |
| SUM PARAFFINS | 645.4 |
| SUM OLEFINS | 212.9 |
| SUM AROMATICS | 465.0 |
| SUM HYDROCARBONS | 1354.6 |

TABLE A-10a. Hydrocarbon concentration data for CHICAGO 1, IL

| Compound | ID Number and Sample Date<br>1190<br>86/06/13 | 1230<br>86/06/16 | 1471<br>86/06/30 | 1733<br>86/07/16 | 1845<br>86/07/22 | 2015<br>86/07/31 | 2245<br>86/08/12 | 2591<br>86/08/29 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 12.9 | 25.7 | 13.4 | 36.6 | 25.2 | 38.0 | 31.4 | 33.1 |
| PROPANE | 31.7 | 13.4 | 12.8 | 31.3 | 21.3 | 21.1 | 20.4 | 31.8 |
| ISOBUTANE | 25.5 | 9.6 | 11.6 | 48.1 | 19.2 | 18.6 | 15.0 | 21.6 |
| n-BUTANE | 89.6 | 40.3 | 45.3 | 245.4 | 85.7 | 87.2 | 74.5 | 84.1 |
| ISOPENTANE | 82.7 | 39.5 | 43.2 | 203.2 | 89.8 | 78.1 | 65.0 | 79.3 |
| n-PENTANE | 43.1 | 18.8 | 20.0 | 87.9 | 41.5 | 35.2 | 29.7 | 37.5 |
| 2,2-DIMETHYLBUTANE | 2.7 | 1.7 | 1.7 | 8.2 | 3.0 | 3.6 | 2.9 | 3.7 |
| CYCLOPENTANE | 3.4 | 3.6 | 1.9 | 7.0 | 3.5 | 3.0 | 2.4 | 3.3 |
| 2,3-DIMETHYLBUTANE | 8.1 | * | 4.1 | 16.1 | 7.9 | 8.1 | 5.6 | 8.4 |
| 2-METHYLPENTANE | 32.2 | 1.3 | 13.5 | 59.4 | 26.4 | 32.1 | 22.5 | 31.6 |
| 3-METHYLPENTANE | 25.6 | * | 12.5 | 34.3 | 20.0 | 22.7 | 27.1 | 18.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 31.2 | 8.9 | 10.4 | 33.1 | 17.6 | 27.5 | 18.3 | 20.6 |
| METHYLCYCLOPENTANE | 13.4 | 5.0 | 5.5 | 18.6 | 10.4 | 10.9 | 9.9 | 12.3 |
| 2,4-DIMETHYLPENTANE | 6.8 | 3.0 | 3.2 | 11.7 | 5.8 | 11.7 | 5.0 | 7.6 |
| CYCLOHEXANE | 4.2 | 1.2 | 2.2 | 4.3 | 3.4 | 3.7 | 2.6 | 3.5 |
| 2-METHYLHEXANE | * | * | * | 12.7 | * | 10.3 | 30.6 | 9.6 |
| 2,3-DIMETHYLPENTANE | 26.7 | 10.3 | 13.9 | 24.2 | 20.8 | 11.2 | * | 15.7 |
| 3-METHYLHEXANE | 13.1 | 5.0 | 6.7 | 17.0 | 9.4 | 9.9 | 19.1 | 12.1 |
| 2,2,4-TRIMETHYLPENTANE | 20.8 | 9.6 | 9.0 | 33.3 | 19.1 | 18.2 | 12.3 | 21.5 |
| n-HEPTANE | 13.1 | 3.5 | 5.8 | 13.5 | 8.8 | 12.2 | 14.3 | 11.5 |
| METHYLCYCLOHEXANE | 5.6 | 1.9 | 2.2 | 7.8 | 3.5 | 12.2 | 4.2 | 5.7 |
| 2,5-DIMETHYLHEXANE | 3.4 | 1.4 | 1.6 | 4.9 | 2.7 | 4.3 | 2.5 | 3.4 |
| 2,4-DIMETHYLHEXANE | 4.3 | 1.7 | 1.6 | 5.5 | 3.1 | 4.6 | 2.6 | 4.1 |
| 2,3,4-TRIMETHYLPENTANE | 8.2 | 4.0 | 3.7 | 12.6 | 7.2 | 6.0 | 7.3 | 7.7 |
| 2-METHYLHEPTANE | 7.8 | 2.1 | 2.8 | 7.0 | 5.2 | 24.1 | 4.1 | 6.0 |
| 3-METHYLHEPTANE | 6.2 | 2.0 | 2.0 | 7.7 | 4.4 | 21.3 | 4.2 | 6.8 |
| 2,2,5-TRIMETHYLHEXANE | 3.0 | 1.0 | 1.3 | 3.3 | 2.1 | 4.8 | 1.0 | 2.5 |
| n-OCTANE | 12.3 | 2.3 | 4.1 | 10.4 | 4.5 | 51.1 | 4.9 | 13.5 |
| 2,4-DIMETHYLHEPTANE | * | 0.8 | 1.5 | 3.5 | 2.5 | 3.9 | 1.0 | 1.6 |
| 4-METHYLOCTANE | 5.0 | 1.4 | 2.1 | 4.7 | 2.9 | 23.9 | 2.6 | 6.8 |
| 3-METHYLOCTANE | 4.9 | 1.4 | 1.7 | 4.4 | 2.3 | 19.9 | 3.5 | 4.8 |
| n-NONANE | 7.1 | 1.8 | 3.2 | 7.3 | 2.4 | 60.2 | 4.1 | 10.2 |
| 4-METHYLNONANE | * | * | * | 2.3 | * | 18.2 | * | * |
| n-DECANE | 15.0 | 0.6 | 9.1 | 11.6 | 3.8 | 76.5 | 4.3 | 13.3 |
| SUM OTHER PARAFFINS | 91.2 | 30.3 | 33.6 | 88.6 | 37.4 | 459.8 | 69.3 | 68.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 32.1 | 38.0 | 22.3 | 79.6 | 49.1 | 39.5 | 31.6 | 57.4 |
| PROPENE | 20.5 | 12.3 | 7.6 | 23.9 | 13.9 | 11.9 | 11.8 | 17.7 |
| 2-METHYLPROPYLENE,BUTENE-1 | 13.8 | 7.7 | 6.0 | 21.1 | 10.2 | 9.1 | 8.9 | 11.7 |
| 1,3-BUTADIENE | 3.4 | 1.9 | 1.2 | 4.1 | 1.1 | 0.8 | 2.3 | 1.4 |
| t-2-BUTENE | 5.1 | 2.4 | 1.9 | 11.2 | 3.2 | 2.7 | 3.4 | 2.5 |
| c-2-BUTENE | 3.5 | 1.6 | 1.4 | 8.4 | 2.9 | 2.5 | 2.0 | 2.4 |
| 1-PENTENE | 1.9 | 1.5 | 1.4 | 6.7 | 2.8 | 6.8 | 1.9 | 2.9 |
| 2-METHYL-1-BUTENE | 4.7 | 2.3 | 2.1 | 13.9 | 4.0 | 4.2 | 3.4 | 6.2 |
| ISOPRENE | 3.2 | 2.7 | 1.6 | 4.0 | 1.3 | 2.1 | 1.5 | 2.2 |
| t-2-PENTENE | 45.2 | 2.5 | 2.0 | 12.5 | 4.8 | 4.4 | 3.6 | 5.2 |
| c-2-PENTENE | * | 4.0 | 3.9 | 17.5 | 7.5 | 6.7 | 5.8 | 8.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | 0.5 | * | 4.1 | 4.2 | 3.3 | * | 5.4 |
| 2-METHYL-2-PENTENE | 2.3 | 1.0 | 1.0 | 4.3 | 2.1 | 1.8 | 3.8 | 2.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 21.4 | 1.7 | 3.4 | 6.8 | 2.6 | 4.7 | 4.5 | 5.3 |
| a-PINENE | 3.0 | 0.1 | 3.5 | * | * | 5.8 | 25.2 | 0.5 |
| SUM OTHER OLEFINS | 64.0 | 35.7 | 21.3 | 63.9 | 34.9 | 54.2 | 50.8 | 33.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 31.4 | 15.1 | 14.0 | 48.4 | 27.6 | 27.1 | 27.4 | 32.2 |
| TOLUENE | 102.4 | 39.0 | 41.9 | 121.7 | 64.8 | 304.2 | 70.3 | 93.3 |
| ETHYLBENZENE | 17.2 | 6.4 | 6.5 | 19.7 | 11.4 | 21.7 | 16.8 | 19.0 |
| m&p-XYLENE | 53.4 | 20.1 | 19.4 | 58.4 | 35.6 | 72.9 | 51.9 | 57.9 |
| o-XYLENE | 21.0 | 8.5 | 8.7 | 25.0 | 14.4 | 24.7 | 21.2 | 19.5 |
| n-PROPYLBENZENE | 5.7 | 1.4 | 1.7 | 4.9 | 3.6 | 9.3 | 1.8 | 6.7 |
| m-ETHYLTOLUENE | 13.5 | 6.0 | 5.2 | 16.0 | 9.8 | 19.6 | 8.0 | 18.0 |
| p-ETHYLTOLUENE | 7.3 | 3.1 | 3.2 | 8.6 | 5.2 | 20.7 | 4.4 | 9.7 |
| 1,3,5-TRIMETHYLBENZENE | 9.0 | 3.4 | 4.5 | 8.2 | 5.9 | 15.2 | 5.4 | 8.9 |
| o-ETHYLTOLUENE | 7.3 | 2.7 | 3.6 | 7.7 | 4.9 | 20.6 | 4.1 | 9.2 |
| 1,2,4-TRIMETHYLBENZENE | 29.9 | 16.8 | 17.7 | 33.2 | 23.1 | 55.1 | 14.7 | 42.1 |
| n-DECANE | 9.3 | * | 3.9 | 8.7 | 5.1 | 16.0 | 3.7 | 6.4 |
| 1,4-DIETHYLBENZENE | 7.6 | 3.2 | 3.2 | 8.3 | 5.5 | 12.0 | 6.5 | 6.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 8.7 | * | 3.7 | 6.4 | 3.9 | 34.7 | 4.1 | 7.7 |
| SUM OTHER AROMATICS | 94.1 | 30.0 | 33.8 | 85.6 | 63.6 | 192.7 | 68.2 | 82.4 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 18.7 | 16.4 | 14.8 | 62.8 | 37.2 | 28.9 | 24.9 | 49.4 |
| SUM UNKNOWNS | 11.1 | 7.8 | 8.1 | 10.0 | 2.9 | 32.1 | 22.5 | 4.2 |
| SUM PARAFFINS | 662.2 | 254.6 | 308.6 | 1128.6 | 524.4 | 1255.7 | 526.0 | 623.7 |
| SUM OLEFINS | 224.6 | 116.3 | 81.3 | 282.7 | 145.4 | 161.1 | 161.2 | 164.9 |
| SUM AROMATICS | 418.7 | 156.1 | 171.7 | 461.4 | 285.0 | 847.1 | 309.3 | 419.8 |
| SUM HYDROCARBONS | 1336.4 | 551.4 | 584.7 | 1947.1 | 995.0 | 2325.1 | 1044.2 | 1262.2 |

TABLE A-10b. Hydrocarbon concentration data for CHICAGO 1, IL

| Compound | ID Number and Sample Date | |
|---|---|---|
| | 2705<br>86/09/05 | 2837<br>86/09/17 |
| PARAFFINS | | |
| ETHANE | 40.5 | 19.5 |
| PROPANE | 29.3 | 18.2 |
| ISOBUTANE | 19.9 | 14.3 |
| n-BUTANE | 101.0 | 47.1 |
| ISOPENTANE | 86.9 | 45.5 |
| n-PENTANE | 43.5 | 21.3 |
| 2,2-DIMETHYLBUTANE | 4.2 | 2.1 |
| CYCLOPENTANE | 3.7 | 1.9 |
| 2,3-DIMETHYLBUTANE | 8.9 | 4.6 |
| 2-METHYLPENTANE | 33.0 | 15.6 |
| 3-METHYLPENTANE | 20.0 | 10.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 20.0 | 12.1 |
| METHYLCYCLOPENTANE | 12.1 | 7.1 |
| 2,4-DIMETHYLPENTANE | 8.2 | 4.1 |
| CYCLOHEXANE | 3.8 | 2.4 |
| 2-METHYLHEXANE | 10.4 | 7.6 |
| 2,3-DIMETHYLPENTANE | 15.4 | 7.6 |
| 3-METHYLHEXANE | 12.4 | 9.2 |
| 2,2,4-TRIMETHYLPENTANE | 21.5 | 14.2 |
| n-HEPTANE | 11.3 | 15.5 |
| METHYLCYCLOHEXANE | 6.2 | 12.0 |
| 2,5-DIMETHYLHEXANE | 3.6 | 3.0 |
| 2,4-DIMETHYLHEXANE | 4.1 | 2.8 |
| 2,3,4-TRIMETHYLPENTANE | 8.3 | 4.5 |
| 2-METHYLHEPTANE | 5.5 | 6.3 |
| 3-METHYLHEPTANE | 6.0 | 5.2 |
| 2,2,5-TRIMETHYLHEXANE | 2.4 | 2.6 |
| n-OCTANE | 9.5 | 8.8 |
| 2,4-DIMETHYLHEPTANE | 2.6 | 1.4 |
| 4-METHYLOCTANE | 3.7 | 4.3 |
| 3-METHYLOCTANE | 3.2 | 3.1 |
| n-NONANE | 6.1 | 10.5 |
| 4-METHYLNONANE | * | 3.0 |
| n-DECANE | 8.0 | 15.9 |
| SUM OTHER PARAFFINS | 72.5 | 75.2 |

|  |  |  |
|---|---|---|
| OLEFINS |  |  |
| ETHYLENE | 63.5 | 37.2 |
| PROPENE | 19.9 | 11.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 12.5 | 6.9 |
| 1,3-BUTADIENE | 2.2 | 1.9 |
| t-2-BUTENE | 4.1 | 2.1 |
| c-2-BUTENE | 2.7 | 1.4 |
| 1-PENTENE | 3.4 | 1.6 |
| 2-METHYL-1-BUTENE | 5.8 | 2.8 |
| ISOPRENE | 2.5 | 3.1 |
| t-2-PENTENE | 5.8 | 2.9 |
| c-2-PENTENE | 10.0 | 4.7 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 3.2 | 6.6 |
| 2-METHYL-2-PENTENE | 2.2 | 1.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 7.7 | 8.7 |
| a-PINENE | 0.5 | * |
| SUM OTHER OLEFINS | 48.7 | 12.7 |
| AROMATICS |  |  |
| BENZENE | 35.5 | 17.9 |
| TOLUENE | 120.0 | 170.6 |
| ETHYLBENZENE | 18.1 | 9.7 |
| m&p-XYLENE | 54.6 | 30.1 |
| o-XYLENE | 19.7 | 10.9 |
| n-PROPYLBENZENE | 5.4 | 2.8 |
| m-ETHYLTOLUENE | 15.0 | 7.5 |
| p-ETHYLTOLUENE | 8.0 | 5.3 |
| 1,3,5-TRIMETHYLBENZENE | 10.1 | 4.4 |
| o-ETHYLTOLUENE | 7.1 | 5.1 |
| 1,2,4-TRIMETHYLBENZENE | 45.3 | 17.9 |
| n-DECANE | 9.0 | 3.9 |
| 1,4-DIETHYLBENZENE | 6.7 | 4.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 10.4 | 8.6 |
| SUM OTHER AROMATICS | 93.4 | 43.6 |
| SUMMARY |  |  |
| ACETYLENE | 61.0 | 17.2 |
| SUM UNKNOWNS | 5.0 | 4.8 |
| SUM PARAFFINS | 649.0 | 440.5 |
| SUM OLEFINS | 195.4 | 106.0 |
| SUM AROMATICS | 458.8 | 343.3 |
| SUM HYDROCARBONS | 1369.4 | 911.9 |

TABLE A-11a. Hydrocarbon concentration data for CHICAGO 2, IL

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1193<br>86/06/13 | 1281<br>86/06/19 | 1282<br>86/06/19 | 1365<br>86/06/24 | 1472<br>86/06/30 | 1582<br>86/07/08 | 1731<br>86/07/16 | 1829<br>86/07/21 |
| PARAFFINS | | | | | | | | |
| ETHANE | 20.4 | 20.7 | 20.1 | 4.9 | 27.2 | 13.3 | 23.5 | 9.4 |
| PROPANE | 26.5 | 22.8 | 22.0 | 4.4 | 26.1 | 17.1 | 27.2 | 17.1 |
| ISOBUTANE | 28.5 | 19.2 | 19.0 | 2.6 | 25.2 | 11.7 | 25.7 | 20.4 |
| n-BUTANE | 116.9 | 83.5 | 83.2 | 10.7 | 108.8 | 54.5 | 119.0 | 100.1 |
| ISOPENTANE | 105.8 | 75.6 | 76.4 | 12.0 | 118.6 | 63.0 | 104.1 | 84.4 |
| n-PENTANE | 52.1 | 37.6 | 37.0 | 5.6 | 51.2 | 27.2 | 46.9 | 36.4 |
| 2,2-DIMETHYLBUTANE | 4.6 | 2.0 | 3.0 | 0.4 | 5.2 | 2.6 | 4.5 | 3.1 |
| CYCLOPENTANE | 3.9 | 3.1 | 2.9 | 0.5 | 4.6 | 2.2 | 4.2 | 2.7 |
| 2,3-DIMETHYLBUTANE | 9.4 | 6.4 | 6.3 | 1.1 | 11.1 | 5.6 | 8.7 | 5.9 |
| 2-METHYLPENTANE | 36.7 | 25.4 | 22.4 | 3.5 | 41.7 | 18.5 | 32.4 | 18.8 |
| 3-METHYLPENTANE | 20.2 | 17.2 | 14.0 | 4.1 | 25.1 | 12.2 | 17.8 | 11.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 21.6 | 15.1 | 15.1 | 2.2 | 26.1 | 11.8 | 18.6 | 11.5 |
| METHYLCYCLOPENTANE | 12.6 | 8.7 | 8.6 | 1.5 | 15.0 | 7.0 | 10.3 | 6.8 |
| 2,4-DIMETHYLPENTANE | 6.8 | 4.6 | 4.7 | * | 9.6 | 4.4 | 5.7 | 7.0 |
| CYCLOHEXANE | 3.1 | 2.5 | 2.2 | * | 7.0 | 2.2 | 2.6 | 1.6 |
| 2-METHYLHEXANE | 9.7 | 31.0 | 7.8 | * | * | * | 7.0 | 6.3 |
| 2,3-DIMETHYLPENTANE | 14.7 | * | 9.3 | 6.7 | 36.1 | 16.7 | 13.0 | 10.0 |
| 3-METHYLHEXANE | 11.9 | 10.4 | 9.5 | 1.8 | 17.1 | 7.0 | 9.7 | 5.6 |
| 2,2,4-TRIMETHYLPENTANE | 20.6 | 13.6 | 13.0 | 2.2 | 33.9 | 13.2 | 15.7 | 9.6 |
| n-HEPTANE | 10.2 | 8.2 | 8.8 | 1.6 | 16.3 | 4.8 | 6.8 | 5.7 |
| METHYLCYCLOHEXANE | 5.1 | 3.5 | 3.6 | 0.4 | 12.1 | 2.5 | 3.8 | 1.9 |
| 2,5-DIMETHYLHEXANE | 3.3 | 2.4 | 2.3 | 0.4 | 5.7 | 2.0 | 2.4 | 1.4 |
| 2,4-DIMETHYLHEXANE | 3.9 | 2.7 | 2.5 | 0.4 | 6.0 | 2.3 | 2.8 | 1.7 |
| 2,3,4-TRIMETHYLPENTANE | 8.5 | 7.8 | 4.9 | 1.3 | 11.3 | 5.5 | 6.1 | 3.1 |
| 2-METHYLHEPTANE | 5.5 | 5.4 | 3.2 | 0.6 | 9.6 | 3.0 | 3.6 | 1.2 |
| 3-METHYLHEPTANE | 6.0 | 3.5 | 3.5 | 0.6 | 6.8 | 2.8 | 3.5 | 2.2 |
| 2,2,5-TRIMETHYLHEXANE | 2.7 | 1.5 | 1.3 | 1.6 | 2.5 | 1.1 | 1.4 | 1.4 |
| n-OCTANE | 11.2 | 8.0 | 3.5 | 0.6 | 19.0 | 3.0 | 6.5 | 3.1 |
| 2,4-DIMETHYLHEPTANE | 2.0 | 0.7 | 2.1 | 1.1 | 3.1 | * | 0.6 | * |
| 4-METHYLOCTANE | 4.0 | 2.9 | 2.2 | 0.6 | 4.8 | 2.1 | 2.2 | 1.5 |
| 3-METHYLOCTANE | 3.6 | 4.1 | 2.0 | * | 4.8 | 2.0 | 2.2 | 1.8 |
| n-NONANE | 5.1 | 5.1 | 3.6 | 1.0 | 6.0 | 6.2 | 5.3 | 6.9 |
| 4-METHYLNONANE | * | * | * | * | * | 5.1 | 4.2 | 6.6 |
| n-DECANE | 8.9 | 6.6 | 6.0 | 2.2 | 10.1 | 25.3 | 21.5 | 33.0 |
| SUM OTHER PARAFFINS | 66.9 | 56.5 | 38.9 | 7.8 | 79.8 | 67.0 | 63.4 | 80.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 38.8 | 36.2 | 37.7 | 6.6 | 64.2 | 32.1 | 35.0 | 18.9 |
| PROPENE | 18.7 | 11.1 | 10.6 | 2.2 | 23.7 | 10.5 | 12.0 | 6.3 |
| 2-METHYLPROPYLENE,BUTENE-1 | 13.2 | 10.3 | 9.7 | 2.7 | 16.9 | 8.0 | 10.1 | 6.5 |
| 1,3-BUTADIENE | 3.4 | 1.0 | 1.5 | 0.3 | 4.3 | 0.7 | 2.2 | 0.9 |
| t-2-BUTENE | 5.1 | 3.5 | 3.1 | 0.5 | 6.6 | 1.9 | 4.8 | 3.6 |
| c-2-BUTENE | 3.5 | 2.7 | 2.3 | 0.3 | 4.7 | 1.8 | 3.5 | 2.9 |
| 1-PENTENE | 3.2 | 2.0 | 2.2 | * | 3.9 | 1.7 | 3.1 | 1.3 |
| 2-METHYL-1-BUTENE | 8.3 | 3.4 | 3.5 | 0.0 | 13.1 | 5.4 | 6.0 | 3.7 |
| ISOPRENE | 1.7 | 0.8 | 2.3 | * | 2.8 | 2.2 | 2.3 | 1.0 |
| t-2-PENTENE | 5.7 | 3.8 | 3.7 | * | 7.3 | 3.2 | 5.7 | 4.2 |
| c-2-PENTENE | 11.7 | 5.3 | 5.5 | 0.8 | 12.2 | 5.0 | 9.0 | 6.8 |
| 2-METHYL-1-PENTENE,1-HEXENE | 2.7 | 6.0 | 5.2 | * | * | 1.1 | 2.4 | 0.2 |
| 2-METHYL-2-PENTENE | 2.0 | 1.4 | 1.2 | * | 3.2 | 1.4 | 1.7 | 1.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 7.7 | 5.0 | 3.9 | 3.7 | 7.4 | 6.0 | 5.5 | 6.2 |
| a-PINENE | 1.0 | 6.8 | * | 1.5 | 2.8 | 2.5 | 2.9 | 16.1 |
| SUM OTHER OLEFINS | 37.3 | 68.4 | 16.8 | 2.2 | 57.0 | 24.4 | 28.3 | 41.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 30.2 | 23.1 | 20.9 | 3.7 | 39.9 | 20.4 | 25.3 | 14.2 |
| TOLUENE | 114.6 | 70.0 | 69.9 | 12.8 | 111.3 | 54.1 | 71.8 | 52.1 |
| ETHYLBENZENE | 15.9 | 9.8 | 9.4 | 2.2 | 19.2 | 8.1 | 11.2 | 7.2 |
| m&p-XYLENE | 49.1 | 31.8 | 28.6 | 7.3 | 61.2 | 24.6 | 34.5 | 20.8 |
| o-XYLENE | 18.9 | 19.7 | 11.7 | 3.5 | 23.9 | 11.4 | 14.1 | 10.7 |
| n-PROPYLBENZENE | 3.8 | 4.5 | 2.2 | 0.5 | 5.1 | 3.5 | 3.8 | 3.6 |
| m-ETHYLTOLUENE | 12.4 | 8.9 | 8.0 | 1.9 | 15.1 | 8.6 | 9.7 | 7.6 |
| p-ETHYLTOLUENE | 6.7 | 5.1 | 4.2 | 1.0 | 7.8 | 6.4 | 6.5 | 6.4 |
| 1,3,5-TRIMETHYLBENZENE | 8.2 | 5.5 | 6.2 | 1.4 | 8.8 | 5.3 | 5.4 | 5.1 |
| o-ETHYLTOLUENE | 6.1 | 4.9 | 4.0 | 1.2 | 7.1 | 7.1 | 6.9 | 8.2 |
| 1,2,4-TRIMETHYLBENZENE | 28.1 | 18.1 | 18.6 | 9.2 | 32.5 | 23.3 | 22.9 | 27.2 |
| n-DECANE | * | 4.4 | 3.9 | 1.5 | * | 5.7 | 5.7 | 6.7 |
| 1,4-DIETHYLBENZENE | 6.5 | 5.3 | 4.2 | 1.6 | 7.7 | 4.8 | 5.3 | 5.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 8.1 | 5.5 | 3.7 | * | * | 7.8 | 11.0 | 16.8 |
| SUM OTHER AROMATICS | 63.5 | 65.2 | 45.0 | 18.6 | 84.4 | 50.0 | 56.5 | 93.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 11.6 | 21.3 | 17.7 | 4.3 | 58.5 | 18.7 | 23.6 | 11.2 |
| SUM UNKNOWNS | 6.5 | 45.9 | 1.9 | 9.1 | 7.5 | 6.4 | 7.6 | 2.7 |
| SUM PARAFFINS | 674.1 | 519.4 | 466.2 | 85.7 | 789.0 | 426.2 | 634.3 | 521.0 |
| SUM OLEFINS | 164.7 | 168.2 | 109.9 | 21.3 | 230.9 | 108.5 | 135.2 | 122.3 |
| SUM AROMATICS | 372.8 | 282.4 | 241.2 | 67.0 | 424.5 | 241.7 | 291.4 | 286.6 |
| SUM HYDROCARBONS | 1229.9 | 1037.5 | 837.0 | 187.5 | 1510.6 | 801.7 | 1092.3 | 943.9 |

## TABLE A-11b. Hydrocarbon concentration data for CHICAGO 2, IL

| Compound | ID Number and Sample Date<br>2014<br>86/07/31 | <br>2166<br>86/08/08 | <br>2246<br>86/08/12 | <br>2422<br>86/08/22 | <br>2562<br>86/08/28 | <br>2595<br>86/08/29 | <br>2795<br>86/09/11 |
|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | |
| ETHANE | 21.6 | 30.4 | 42.2 | 11.3 | 17.8 | 24.7 | 19.3 |
| PROPANE | 29.6 | 23.4 | 28.0 | 14.0 | 13.0 | 23.7 | 18.3 |
| ISOBUTANE | 20.0 | 18.7 | 20.4 | 9.3 | 9.7 | 14.2 | 11.2 |
| n-BUTANE | 91.4 | 76.8 | 93.9 | 25.5 | 37.8 | 57.4 | 44.9 |
| ISOPENTANE | 81.8 | 70.6 | 85.9 | 24.1 | 36.4 | 49.3 | 41.7 |
| n-PENTANE | 36.6 | 33.7 | 40.4 | 8.1 | 17.3 | 22.0 | 22.4 |
| 2,2-DIMETHYLBUTANE | 3.3 | 3.2 | 3.9 | 0.8 | 1.6 | 2.1 | 1.6 |
| CYCLOPENTANE | 3.0 | 2.9 | 3.2 | 0.9 | 1.4 | 1.9 | 1.9 |
| 2,3-DIMETHYLBUTANE | 7.0 | 7.0 | 8.1 | 2.0 | 3.9 | 4.7 | 3.8 |
| 2-METHYLPENTANE | 26.9 | 27.3 | 32.3 | 6.6 | 13.1 | 17.8 | 12.9 |
| 3-METHYLPENTANE | 14.8 | 15.2 | 34.6 | 5.1 | 9.4 | 10.6 | 8.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 14.9 | 15.5 | 24.8 | 4.4 | 8.6 | 13.9 | 9.5 |
| METHYLCYCLOPENTANE | 9.0 | 9.1 | 13.5 | 2.8 | 5.2 | 7.1 | 5.5 |
| 2,4-DIMETHYLPENTANE | 4.9 | 5.4 | 6.9 | 1.4 | 3.7 | 3.9 | 3.2 |
| CYCLOHEXANE | 2.1 | 2.2 | 3.1 | 1.3 | 1.1 | 2.4 | 1.7 |
| 2-METHYLHEXANE | * | * | 16.9 | * | * | * | * |
| 2,3-DIMETHYLPENTANE | 15.0 | 17.0 | 13.5 | 4.3 | 10.6 | 13.1 | 17.2 |
| 3-METHYLHEXANE | 7.6 | 8.6 | 18.7 | 2.4 | 5.0 | 7.4 | 6.4 |
| 2,2,4-TRIMETHYLPENTANE | 13.0 | 14.4 | 17.8 | 3.8 | 10.0 | 10.4 | 9.7 |
| n-HEPTANE | 6.0 | 6.2 | 15.5 | 2.9 | 3.4 | 8.3 | 5.9 |
| METHYLCYCLOHEXANE | 3.8 | 3.7 | 6.1 | 2.0 | 2.0 | 3.6 | 2.6 |
| 2,5-DIMETHYLHEXANE | 2.2 | 2.4 | 3.1 | 0.4 | 0.6 | 1.7 | 1.5 |
| 2,4-DIMETHYLHEXANE | 2.4 | 2.7 | 3.5 | 0.7 | 1.8 | 1.9 | 1.8 |
| 2,3,4-TRIMETHYLPENTANE | 5.1 | 5.7 | 6.7 | 1.4 | 3.8 | 3.9 | 3.5 |
| 2-METHYLHEPTANE | 3.5 | 3.7 | 4.8 | 1.2 | 2.0 | 2.7 | 6.9 |
| 3-METHYLHEPTANE | 3.7 | 3.7 | 5.2 | 0.9 | 2.2 | 2.9 | 3.4 |
| 2,2,5-TRIMETHYLHEXANE | 1.7 | 1.3 | 1.9 | 0.4 | 2.0 | 1.0 | 2.0 |
| n-OCTANE | 3.5 | 3.3 | 12.9 | 1.0 | 2.7 | * | 4.3 |
| 2,4-DIMETHYLHEPTANE | 0.9 | * | 2.9 | 0.9 | 1.2 | 1.4 | * |
| 4-METHYLOCTANE | 2.5 | 2.4 | 3.8 | 0.9 | 2.0 | 1.7 | 2.2 |
| 3-METHYLOCTANE | 2.1 | 2.4 | 4.5 | 0.6 | 1.3 | 1.6 | 2.5 |
| n-NONANE | 5.2 | 6.4 | * | 0.9 | 2.4 | 2.6 | 19.0 |
| 4-METHYLNONANE | 4.2 | 4.6 | 1.8 | * | 1.1 | 1.2 | 20.8 |
| n-DECANE | 19.8 | 23.8 | 9.9 | 2.2 | 6.2 | 6.0 | 113.3 |
| SUM OTHER PARAFFINS | 60.0 | 69.7 | 61.7 | 8.1 | 19.8 | 33.6 | 242.4 |

|  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |
| ETHYLENE | 31.8 | 42.0 | 40.8 | 12.1 | 28.2 | 29.2 | 33.7 |
| PROPENE | 10.0 | 12.6 | 14.4 | 5.0 | 9.4 | 8.1 | 8.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 8.2 | 7.7 | 10.7 | 2.1 | 6.6 | 5.7 | 6.2 |
| 1,3-BUTADIENE | 0.4 | 0.7 | 2.9 | 0.1 | 1.8 | 0.3 | 0.5 |
| t-2-BUTENE | 2.5 | 1.9 | 3.8 | 0.5 | 1.7 | 1.2 | 0.8 |
| c-2-BUTENE | 2.4 | 1.6 | 2.5 | 0.4 | 1.1 | 1.1 | 1.3 |
| 1-PENTENE | 2.5 | 1.9 | 3.5 | 0.5 | 1.3 | 1.5 | 2.0 |
| 2-METHYL-1-BUTENE | 4.4 | 6.1 | 4.4 | 0.6 | 2.0 | 2.9 | 3.2 |
| ISOPRENE | 1.3 | 1.2 | 1.5 | * | 1.0 | 0.8 | 0.6 |
| t-2-PENTENE | 4.2 | 3.3 | 4.8 | 0.9 | 2.9 | 2.5 | 1.6 |
| c-2-PENTENE | 5.8 | 11.7 | 8.0 | 0.0 | 4.0 | 7.3 | 1.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 2.8 | 2.8 | 0.1 | 0.5 | 1.8 | 0.3 |
| 2-METHYL-2-PENTENE | 1.4 | 1.3 | 1.7 | 0.0 | 1.0 | 0.8 | 0.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.9 | 7.9 | 6.8 | 1.6 | 1.9 | 5.1 | 5.4 |
| a-PINENE | 2.8 | 2.1 | 4.8 | * | * | * | 11.1 |
| SUM OTHER OLEFINS | 28.2 | 27.7 | 33.9 | 4.9 | 12.5 | 20.3 | 36.3 |
| AROMATICS |  |  |  |  |  |  |  |
| BENZENE | 23.9 | 23.1 | 29.2 | 11.7 | 15.5 | 16.2 | 15.5 |
| TOLUENE | 68.8 | 75.1 | 113.8 | 19.8 | 40.5 | 60.9 | 53.7 |
| ETHYLBENZENE | 9.7 | 11.9 | 15.6 | 3.1 | 7.3 | 12.4 | 7.5 |
| m&p-XYLENE | 30.3 | 35.7 | 46.1 | 10.5 | 22.3 | 37.5 | 23.1 |
| o-XYLENE | 12.4 | 14.4 | 18.2 | 4.2 | 8.5 | 11.1 | 12.2 |
| n-PROPYLBENZENE | 3.8 | 4.0 | 3.8 | 0.6 | 1.7 | 5.0 | 9.7 |
| m-ETHYLTOLUENE | 10.0 | 10.3 | 11.8 | 2.7 | 6.8 | 12.6 | 16.6 |
| p-ETHYLTOLUENE | 6.6 | 6.9 | 6.4 | 1.5 | 3.8 | 6.8 | 17.8 |
| 1,3,5-TRIMETHYLBENZENE | 5.8 | 6.0 | 5.9 | 2.0 | 3.6 | 6.5 | 14.0 |
| o-ETHYLTOLUENE | 6.8 | 7.2 | 5.6 | 1.5 | 3.7 | 5.8 | 25.1 |
| 1,2,4-TRIMETHYLBENZENE | 22.1 | 23.9 | 25.4 | 9.2 | 17.7 | 25.3 | 54.7 |
| n-DECANE | 6.6 | 8.5 | 6.2 | 1.1 | 3.2 | 5.2 | 31.8 |
| 1,4-DIETHYLBENZENE | 5.2 | 6.8 | 6.9 | 1.4 | 3.6 | 3.6 | 21.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 7.2 | 11.6 | 5.7 | 1.9 | 3.5 | 4.3 | 68.8 |
| SUM OTHER AROMATICS | 63.2 | 78.6 | 70.6 | 27.6 | 33.3 | 43.3 | 290.3 |
| SUMMARY |  |  |  |  |  |  |  |
| ACETYLENE | 22.8 | 27.0 | 33.5 | 7.2 | 21.7 | 21.1 | 22.2 |
| SUM UNKNOWNS | 10.7 | 5.4 | 6.6 | 1.6 | 1.5 | 4.2 | 32.7 |
| SUM PARAFFINS | 530.4 | 525.0 | 653.8 | 154.0 | 261.5 | 361.8 | 673.0 |
| SUM OLEFINS | 110.4 | 133.2 | 148.1 | 29.3 | 76.4 | 89.2 | 113.7 |
| SUM AROMATICS | 282.9 | 324.5 | 371.9 | 99.4 | 175.8 | 257.1 | 662.9 |
| SUM HYDROCARBONS | 957.3 | 1015.3 | 1214.4 | 292.2 | 537.2 | 733.6 | 1504.6 |

## TABLE A-12a. Hydrocarbon concentration data for CHARLOTTE, NC

| Compound | ID Number and Sample Date<br>1255<br>84/07/12 | <br>1323<br>84/07/19 | <br>1411<br>84/07/25 | <br>1442<br>84/07/27 | <br>1495<br>84/07/31 | <br>1591<br>84/08/06 | <br>1659<br>84/08/08 | <br>1663<br>84/08/09 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 7.7 | 7.2 | 7.6 | 3.6 | 4.1 | 6.9 | 12.6 | 19.4 |
| PROPANE | 8.5 | 6.4 | 9.3 | 3.3 | 3.4 | 12.3 | 16.1 | 23.4 |
| ISOBUTANE | 4.0 | 2.8 | 4.9 | 2.3 | 2.3 | 9.3 | 12.1 | 24.3 |
| n-BUTANE | 14.8 | 10.2 | 18.5 | 7.9 | 8.7 | 32.7 | 39.2 | 84.2 |
| ISOPENTANE | 16.8 | 13.7 | 22.3 | 9.5 | 11.6 | 42.6 | 51.6 | 105.9 |
| n-PENTANE | 7.8 | 6.9 | 10.8 | 4.4 | 5.7 | 20.4 | 28.1 | 49.9 |
| 2,2-DIMETHYLBUTANE | 0.5 | 0.4 | 0.7 | 0.2 | 0.6 | 1.4 | 2.0 | 4.1 |
| CYCLOPENTANE | 0.6 | 0.6 | 0.8 | 0.3 | 0.6 | 1.7 | 2.2 | 4.4 |
| 2,3-DIMETHYLBUTANE | 1.4 | 1.3 | 2.0 | 1.0 | 1.3 | 4.1 | 5.4 | 10.4 |
| 2-METHYLPENTANE | 5.1 | 5.2 | 7.9 | 3.7 | 4.9 | 15.8 | 20.6 | 36.8 |
| 3-METHYLPENTANE | 7.3 | 6.2 | 5.6 | 2.5 | 3.0 | 9.3 | 14.4 | 23.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 3.0 | 3.7 | 4.5 | 2.5 | 3.3 | 9.0 | 12.5 | 22.9 |
| METHYLCYCLOPENTANE | 2.0 | 2.6 | 2.9 | 1.6 | 1.8 | 5.6 | 7.5 | 14.0 |
| 2,4-DIMETHYLPENTANE | 0.9 | 0.8 | 1.4 | 0.7 | 1.1 | 2.8 | 3.8 | 7.0 |
| CYCLOHEXANE | 0.5 | 0.4 | 0.5 | 0.3 | 0.3 | 1.1 | 1.7 | 2.9 |
| 2-METHYLHEXANE | 1.3 | 2.2 | 2.4 | 0.4 | 1.8 | 5.0 | 6.6 | 12.3 |
| 2,3-DIMETHYLPENTANE | 2.6 | 2.6 | 2.0 | * | 1.3 | 4.0 | 5.4 | 10.5 |
| 3-METHYLHEXANE | 17.0 | 12.2 | 2.7 | 1.1 | 1.9 | 5.3 | 8.4 | 14.1 |
| 2,2,4-TRIMETHYLPENTANE | 2.7 | 3.3 | 3.8 | 1.2 | 2.4 | 7.9 | 10.1 | 19.4 |
| n-HEPTANE | 1.6 | 1.4 | 1.9 | 1.0 | 1.4 | 3.6 | 5.5 | 9.9 |
| METHYLCYCLOHEXANE | 1.1 | 1.3 | 1.4 | 0.8 | 0.9 | 2.7 | 3.3 | 5.9 |
| 2,5-DIMETHYLHEXANE | 1.2 | 3.5 | 0.8 | 0.3 | 0.5 | 1.6 | 2.0 | 3.8 |
| 2,4-DIMETHYLHEXANE | 2.7 | 5.6 | 1.1 | 0.5 | 0.8 | 1.9 | 2.3 | 4.4 |
| 2,3,4-TRIMETHYLPENTANE | 0.8 | 1.0 | 1.3 | 0.4 | 0.9 | 2.6 | 3.4 | 6.5 |
| 2-METHYLHEPTANE | 1.1 | 1.7 | 0.9 | 0.5 | 0.7 | 3.2 | 2.9 | 4.5 |
| 3-METHYLHEPTANE | 0.9 | 1.0 | 1.3 | 0.5 | 0.9 | 2.2 | 3.1 | 5.1 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | 0.3 | 0.4 | 0.1 | 0.3 | 1.0 | 1.2 | 2.4 |
| n-OCTANE | 0.6 | 0.7 | 0.6 | 0.4 | 0.5 | 1.7 | 2.4 | 3.1 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | * | 0.7 | * | 0.5 | 1.2 | 1.6 | 3.6 |
| 3-METHYLOCTANE | 0.6 | 0.5 | 0.6 | 0.2 | 0.3 | 0.8 | 1.1 | 2.0 |
| n-NONANE | 0.6 | 0.8 | 0.8 | 0.5 | 0.8 | 1.6 | 2.3 | 2.6 |
| 4-METHYLNONANE | 0.7 | 1.9 | * | * | * | * | * | * |
| n-DECANE | 2.2 | 1.9 | 1.4 | 0.8 | 0.6 | 2.6 | 5.2 | 5.1 |
| SUM OTHER PARAFFINS | 139.1 | 72.1 | 27.5 | 18.0 | 17.9 | 40.8 | 51.6 | 70.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 14.8 | 12.7 | 14.3 | 5.4 | 11.6 | 16.4 | 26.3 | 42.6 |
| PROPENE | 3.7 | 4.3 | 4.3 | 1.4 | 3.8 | 5.4 | 9.5 | 15.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 3.4 | * | 3.9 | 1.7 | 2.7 | 5.1 | 7.7 | 11.7 |
| 1,3-BUTADIENE | 0.6 | 5.5 | 0.6 | * | 0.8 | 0.8 | 2.0 | 3.9 |
| t-2-BUTENE | 0.8 | 0.9 | 1.0 | 0.4 | 0.7 | 2.1 | 3.0 | 6.0 |
| c-2-BUTENE | 0.5 | 0.7 | 0.9 | 0.3 | 0.5 | 1.8 | 2.5 | 4.2 |
| 1-PENTENE | 0.5 | 0.4 | 0.7 | 0.5 | 0.6 | 2.0 | 1.8 | 3.9 |
| 2-METHYL-1-BUTENE | 0.8 | 0.7 | 1.1 | 0.5 | 0.7 | 2.4 | 2.9 | 6.2 |
| ISOPRENE | 4.4 | 3.8 | 9.5 | 3.0 | 1.0 | 5.5 | 9.4 | 12.0 |
| t-2-PENTENE | 0.7 | 0.8 | 1.2 | 0.4 | 0.7 | 3.0 | 3.4 | 7.2 |
| c-2-PENTENE | 2.2 | 0.8 | 1.5 | 0.4 | 0.6 | 3.7 | 3.2 | * |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.9 | * | 0.8 | * | * | 0.3 | 0.2 | 2.0 |
| 2-METHYL-2-PENTENE | 0.3 | 0.6 | 0.3 | * | 0.3 | 1.1 | 1.4 | 3.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 0.5 | 0.8 | 0.6 | 0.7 | 1.2 | 1.8 | 2.8 |
| a-PINENE | 2.2 | 1.8 | 3.0 | 1.3 | 1.1 | 9.1 | 8.8 | 15.0 |
| SUM OTHER OLEFINS | 26.8 | 62.2 | 38.2 | 31.0 | 26.1 | 39.5 | 40.1 | 60.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 4.8 | 5.5 | 6.0 | 2.5 | 5.3 | 9.5 | 14.2 | 25.3 |
| TOLUENE | 12.2 | 13.0 | 19.1 | 8.2 | 11.5 | 26.2 | 63.9 | 68.7 |
| ETHYLBENZENE | 2.9 | 2.8 | 3.1 | 1.3 | 2.2 | 4.6 | 7.0 | 11.4 |
| m&p-XYLENE | 8.0 | 9.1 | 9.9 | 4.2 | 7.3 | 16.2 | 23.2 | 39.7 |
| o-XYLENE | 3.2 | 3.8 | 4.0 | 1.7 | 3.0 | 6.4 | 8.8 | 14.9 |
| n-PROPYLBENZENE | * | 1.2 | 0.9 | 0.4 | 0.7 | 1.4 | 1.7 | 3.6 |
| m-ETHYLTOLUENE | 2.8 | 4.2 | 3.9 | 1.7 | 2.7 | 5.6 | 7.6 | 12.6 |
| p-ETHYLTOLUENE | * | 2.9 | 2.1 | 1.1 | 1.8 | 3.0 | 4.1 | 6.2 |
| 1,3,5-TRIMETHYLBENZENE | 1.1 | 1.6 | 1.9 | 0.5 | 1.4 | 2.9 | 4.0 | 6.5 |
| o-ETHYLTOLUENE | 2.7 | 2.5 | 2.4 | 1.0 | 1.3 | 3.7 | 4.6 | 7.8 |
| 1,2,4-TRIMETHYLBENZENE | * | 5.3 | 5.9 | 2.5 | 4.4 | 8.7 | 12.3 | 19.3 |
| n-DECANE | * | 5.6 | 5.1 | 3.4 | 3.3 | 5.2 | 5.8 | 7.1 |
| 1,4-DIETHYLBENZENE | 0.0 | 1.6 | 2.0 | 1.1 | 1.2 | 2.3 | 3.5 | 5.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 1.4 | 1.5 | 1.0 | 0.7 | 2.1 | 1.9 | 2.8 |
| SUM OTHER AROMATICS | 97.7 | 43.5 | 29.2 | 19.3 | 19.6 | 39.1 | 43.9 | 63.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 7.7 | 8.1 | 9.6 | 3.3 | 7.6 | 13.0 | 21.1 | 30.2 |
| SUM UNKNOWNS | 19.2 | 1.3 | 2.2 | 2.4 | 1.5 | 2.1 | 0.7 | 7.2 |
| SUM PARAFFINS | 259.4 | 183.8 | 152.7 | 71.7 | 88.4 | 266.1 | 349.4 | 620.5 |
| SUM OLEFINS | 64.1 | 96.5 | 82.8 | 47.3 | 52.6 | 100.2 | 124.9 | 197.5 |
| SUM AROMATICS | 136.0 | 104.8 | 97.8 | 50.6 | 67.2 | 137.4 | 207.3 | 295.4 |
| SUM HYDROCARBONS | 495.2 | 394.6 | 345.1 | 175.6 | 217.5 | 519.0 | 703.6 | 1150.9 |

TABLE A-12b. Hydrocarbon concentration data for CHARLOTTE, NC

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1678<br>84/08/10 | 1721<br>84/08/13 | 1841<br>84/08/21 | 2301<br>84/09/19 | 2409<br>84/09/25 | 2410<br>84/09/24 | 2472<br>84/09/28 | 2474<br>84/09/27 |
| PARAFFINS | | | | | | | | |
| ETHANE | 9.2 | 6.4 | 6.8 | 11.9 | 14.8 | 10.7 | 5.3 | 5.7 |
| PROPANE | 7.7 | 6.1 | 6.7 | 14.1 | 15.3 | 11.2 | 4.4 | 3.5 |
| ISOBUTANE | 3.9 | 3.0 | 3.9 | 7.4 | 17.7 | 13.3 | 2.0 | 1.7 |
| n-BUTANE | 15.9 | 10.5 | 14.2 | 33.1 | 68.4 | 46.2 | 9.1 | 6.2 |
| ISOPENTANE | 21.8 | 13.6 | 19.1 | 50.5 | 79.1 | 59.9 | 11.9 | 8.0 |
| n-PENTANE | 10.7 | 6.4 | 9.3 | 25.1 | 36.1 | 28.3 | 5.9 | 4.1 |
| 2,2-DIMETHYLBUTANE | 0.8 | 0.4 | 0.7 | 2.5 | 3.2 | 2.2 | 0.4 | 0.2 |
| CYCLOPENTANE | 0.9 | 0.5 | 0.7 | 2.5 | 3.4 | 2.6 | 0.5 | 0.3 |
| 2,3-DIMETHYLBUTANE | 2.1 | 1.3 | 1.9 | 6.1 | 7.9 | 6.2 | 1.3 | 0.8 |
| 2-METHYLPENTANE | 8.6 | 5.6 | 8.4 | 24.4 | 28.0 | 23.9 | 4.9 | 3.2 |
| 3-METHYLPENTANE | 5.0 | 3.6 | 5.4 | 14.5 | 18.0 | 13.9 | 3.1 | 2.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.5 | 3.3 | 5.1 | 14.7 | 17.0 | 13.3 | 3.1 | 1.9 |
| METHYLCYCLOPENTANE | 3.5 | 2.0 | 3.0 | 9.4 | 10.8 | 8.6 | 2.0 | 1.3 |
| 2,4-DIMETHYLPENTANE | 1.7 | 1.2 | 1.7 | 4.9 | 5.5 | 4.1 | 1.1 | 0.7 |
| CYCLOHEXANE | 0.7 | 0.3 | 0.7 | 2.1 | 2.4 | 1.8 | 0.4 | 0.3 |
| 2-METHYLHEXANE | 2.9 | 1.7 | 5.8 | 9.5 | 10.0 | 7.9 | 1.9 | 1.3 |
| 2,3-DIMETHYLPENTANE | 2.5 | 1.7 | * | 6.9 | 7.7 | 6.0 | 1.4 | 0.8 |
| 3-METHYLHEXANE | 3.1 | 2.0 | 3.1 | 9.6 | 11.0 | 8.5 | 2.2 | 1.3 |
| 2,2,4-TRIMETHYLPENTANE | 5.3 | 3.4 | 5.4 | 16.0 | 17.1 | 13.8 | 2.9 | 1.9 |
| n-HEPTANE | 2.4 | 1.2 | 2.1 | 7.9 | 8.5 | 6.2 | 1.9 | 0.9 |
| METHYLCYCLOHEXANE | 1.6 | 1.2 | 1.5 | 4.7 | 5.4 | 4.2 | 1.0 | 0.6 |
| 2,5-DIMETHYLHEXANE | 0.9 | 0.5 | 1.0 | 3.3 | 3.3 | 2.6 | 0.7 | 0.4 |
| 2,4-DIMETHYLHEXANE | 1.2 | 0.8 | 1.4 | 3.6 | 3.7 | 3.0 | 0.8 | 0.6 |
| 2,3,4-TRIMETHYLPENTANE | 1.8 | 1.2 | 1.8 | 5.7 | 5.7 | 4.6 | 1.2 | 0.8 |
| 2-METHYLHEPTANE | 1.0 | 1.0 | 1.8 | 4.4 | 4.0 | 3.4 | 1.0 | 0.5 |
| 3-METHYLHEPTANE | 1.4 | 0.8 | 1.4 | 4.6 | 4.5 | 3.4 | 1.0 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 0.5 | 0.7 | 2.4 | 2.2 | 1.7 | 0.6 | 0.3 |
| n-OCTANE | 0.8 | 0.5 | 1.1 | 3.4 | 2.7 | 2.3 | 0.5 | 0.4 |
| 2,4-DIMETHYLHEPTANE | * | * | * | 0.4 | 0.2 | * | * | * |
| 4-METHYLOCTANE | 0.8 | * | 0.9 | 3.0 | 2.4 | 2.0 | 0.6 | 0.4 |
| 3-METHYLOCTANE | 0.5 | 0.2 | 0.9 | 1.7 | 1.6 | 1.3 | 0.3 | 0.2 |
| n-NONANE | 1.1 | 2.7 | 0.8 | 1.9 | 2.4 | * | 0.5 | 0.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.0 | 0.9 | 1.2 | 2.4 | 4.5 | 3.3 | 0.6 | 0.5 |
| SUM OTHER PARAFFINS | 24.5 | 30.1 | 24.1 | 36.9 | 45.0 | 52.5 | 12.4 | 8.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 15.6 | 9.1 | 17.8 | 48.9 | 39.1 | 31.2 | 13.0 | 8.7 |
| PROPENE | 6.1 | 3.6 | 5.7 | 16.1 | 12.3 | 10.3 | 3.2 | 2.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.0 | 4.4 | 4.0 | 10.1 | 9.4 | 7.7 | 2.2 | 1.6 |
| 1,3-BUTADIENE | 1.7 | 5.0 | 1.2 | 4.3 | 2.7 | 1.5 | 0.8 | * |
| t-2-BUTENE | 1.2 | 0.9 | 1.3 | 3.5 | 4.4 | 2.4 | 0.5 | * |
| c-2-BUTENE | 0.7 | 0.8 | 0.8 | 2.2 | 3.1 | 2.2 | 0.4 | 0.2 |
| 1-PENTENE | 1.0 | 0.4 | 0.8 | 2.3 | 3.1 | 2.4 | 0.4 | 0.2 |
| 2-METHYL-1-BUTENE | 1.1 | 0.8 | 1.3 | 3.7 | 4.8 | 4.0 | 0.7 | 0.4 |
| ISOPRENE | 3.5 | 2.8 | 2.1 | 2.2 | 4.8 | 3.4 | 0.5 | 0.3 |
| t-2-PENTENE | 1.3 | 0.8 | 1.4 | 4.6 | 5.9 | 4.7 | 0.8 | 0.5 |
| c-2-PENTENE | 1.3 | 0.9 | * | 6.2 | 6.2 | 6.0 | 1.0 | 0.7 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.9 | * | 1.8 | 1.0 | 1.2 | 1.1 | 0.0 | * |
| 2-METHYL-2-PENTENE | 0.5 | 0.2 | 0.6 | 2.2 | 2.2 | 1.9 | 0.3 | 0.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 0.7 | 0.7 | 1.1 | 1.8 | 1.0 | 0.5 | 0.3 |
| a-PINENE | 3.3 | 2.6 | 4.2 | 4.8 | 16.3 | 14.9 | 0.9 | 0.5 |
| SUM OTHER OLEFINS | 31.1 | 41.8 | 35.3 | 63.2 | 44.9 | 42.6 | 20.0 | 15.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 7.8 | 5.0 | 8.4 | 24.2 | 24.5 | 16.5 | 5.7 | 3.8 |
| TOLUENE | 18.6 | 12.5 | 17.6 | 51.8 | 56.8 | 44.1 | 15.5 | 9.8 |
| ETHYLBENZENE | 3.3 | 2.1 | 3.3 | 10.0 | 9.6 | 8.0 | 2.7 | 1.9 |
| m&p-XYLENE | 11.2 | 6.9 | 12.0 | 34.7 | 33.1 | 28.1 | 8.9 | 6.7 |
| o-XYLENE | 4.4 | 3.0 | 4.4 | 12.7 | 12.2 | 10.3 | 3.3 | 2.5 |
| n-PROPYLBENZENE | 1.0 | 1.0 | 1.2 | 2.7 | 3.1 | 2.1 | 0.7 | 0.5 |
| m-ETHYLTOLUENE | 4.0 | 2.8 | 3.9 | 10.9 | 10.5 | 9.2 | 2.8 | 2.1 |
| p-ETHYLTOLUENE | 2.3 | 2.2 | 2.3 | 5.3 | 5.0 | 4.4 | 1.5 | 1.2 |
| 1,3,5-TRIMETHYLBENZENE | 2.1 | 1.5 | 2.1 | 5.9 | 5.6 | 5.2 | 1.5 | 1.1 |
| o-ETHYLTOLUENE | 2.3 | 1.7 | 2.1 | 5.2 | 7.2 | 5.7 | 1.4 | 1.1 |
| 1,2,4-TRIMETHYLBENZENE | 6.6 | 4.7 | 6.6 | 17.0 | 16.4 | 14.2 | 4.7 | 3.6 |
| n-DECANE | 4.3 | 3.2 | 3.2 | 5.4 | 6.7 | 5.2 | 2.2 | 1.9 |
| 1,4-DIETHYLBENZENE | 2.1 | 1.6 | 2.3 | 4.9 | 4.2 | 4.1 | 1.6 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.0 | 1.5 | 1.4 | 1.8 | 2.4 | 2.9 | 0.6 | 0.3 |
| SUM OTHER AROMATICS | 24.2 | 21.7 | 23.5 | 45.2 | 50.0 | 56.6 | 14.5 | 13.1 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 12.0 | 7.1 | 11.7 | 44.0 | 20.7 | 22.1 | 8.9 | 6.0 |
| SUM UNKNOWNS | 1.2 | 1.7 | 3.1 | 1.3 | 2.1 | * | * | * |
| SUM PARAFFINS | 153.1 | 116.0 | 144.1 | 353.0 | 470.8 | 374.4 | 88.5 | 61.8 |
| SUM OLEFINS | 74.9 | 75.4 | 79.5 | 177.1 | 162.7 | 137.9 | 45.9 | 31.5 |
| SUM AROMATICS | 95.8 | 71.9 | 94.8 | 238.2 | 248.1 | 217.2 | 68.2 | 51.6 |
| SUM HYDROCARBONS | 337.2 | 272.3 | 333.3 | 813.8 | 904.6 | 751.9 | 211.6 | 151.2 |

TABLE A-13a. Hydrocarbon concentration data for CHATTANOOGA, TN

| Compound | ID Number and Sample Date<br>1371<br>84/07/17 | 1380<br>84/07/19 | 1406<br>84/07/23 | 1490<br>84/07/27 | 1646<br>84/08/07 | 1789<br>84/08/15 | 2283<br>84/09/14 | 2367<br>84/09/20 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 26.0 | 14.5 | 20.7 | 19.5 | 18.6 | 39.2 | 34.0 | 22.8 |
| PROPANE | 25.5 | 15.5 | 16.7 | 19.4 | 12.1 | 34.4 | 21.1 | 16.5 |
| ISOBUTANE | 17.8 | 16.1 | 16.6 | 19.1 | 9.6 | 29.9 | 11.2 | 12.7 |
| n-BUTANE | 44.0 | 45.4 | 22.1 | 41.0 | 31.7 | 71.0 | 45.3 | 57.0 |
| ISOPENTANE | 81.3 | 58.9 | 21.6 | 47.4 | 43.0 | 151.5 | 59.4 | 67.0 |
| n-PENTANE | 117.5 | 27.5 | 14.4 | 23.0 | 20.5 | 256.8 | 27.9 | 30.9 |
| 2,2-DIMETHYLBUTANE | 3.5 | 2.5 | 1.2 | 1.7 | 1.9 | 4.4 | 2.6 | 3.2 |
| CYCLOPENTANE | 5.9 | 2.4 | 0.9 | 1.8 | 1.8 | 7.2 | 2.7 | 3.0 |
| 2,3-DIMETHYLBUTANE | 16.4 | 5.9 | 3.0 | 4.4 | 4.5 | 20.3 | 6.5 | 6.9 |
| 2-METHYLPENTANE | 49.3 | 23.4 | 16.0 | 16.3 | 17.3 | 62.2 | 24.6 | 27.2 |
| 3-METHYLPENTANE | 63.7 | 19.5 | 17.5 | 13.0 | 11.6 | 64.0 | 15.8 | 17.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 36.0 | 18.8 | 28.9 | 10.7 | 10.6 | 40.0 | 14.3 | 17.4 |
| METHYLCYCLOPENTANE | 18.6 | 10.0 | 12.9 | 6.6 | 6.4 | 32.8 | 8.8 | 9.5 |
| 2,4-DIMETHYLPENTANE | 6.2 | 4.3 | 1.6 | 3.7 | 3.4 | 11.2 | 5.0 | 5.0 |
| CYCLOHEXANE | 7.1 | 2.6 | 3.1 | 1.5 | 1.5 | 23.0 | 2.0 | 2.3 |
| 2-METHYLHEXANE | 9.6 | 8.6 | 5.9 | 6.0 | 6.4 | 20.6 | 8.6 | 9.5 |
| 2,3-DIMETHYLPENTANE | 6.2 | 6.6 | * | 4.9 | 4.2 | 16.2 | 7.8 | 7.6 |
| 3-METHYLHEXANE | 17.7 | 13.5 | 10.0 | 9.7 | 9.4 | 31.0 | 9.8 | 11.1 |
| 2,2,4-TRIMETHYLPENTANE | 11.2 | 12.9 | 4.6 | 9.4 | 10.2 | 37.5 | 17.0 | 16.2 |
| n-HEPTANE | 11.1 | 7.3 | 2.6 | 5.5 | 6.3 | 25.8 | 8.1 | 9.3 |
| METHYLCYCLOHEXANE | 20.2 | 4.3 | 0.8 | 20.1 | 5.9 | 52.6 | 5.4 | 6.6 |
| 2,5-DIMETHYLHEXANE | 5.8 | 2.9 | 0.9 | 2.2 | 2.5 | 8.6 | 3.5 | 3.8 |
| 2,4-DIMETHYLHEXANE | 6.9 | 3.4 | 1.5 | 2.4 | 2.9 | 9.1 | 4.0 | 4.1 |
| 2,3,4-TRIMETHYLPENTANE | 4.9 | 4.3 | 1.3 | 3.2 | 3.4 | 14.5 | 6.0 | 5.9 |
| 2-METHYLHEPTANE | 74.3 | 4.3 | 1.6 | 4.5 | 4.5 | 17.3 | 6.1 | 7.7 |
| 3-METHYLHEPTANE | 55.1 | 4.7 | 1.4 | 3.3 | 4.5 | 16.4 | 6.4 | 7.9 |
| 2,2,5-TRIMETHYLHEXANE | 11.7 | 1.5 | 1.0 | 1.2 | 1.6 | 11.4 | 2.8 | 2.9 |
| n-OCTANE | 163.4 | 3.9 | 1.9 | 2.9 | 5.7 | 36.4 | 8.8 | 11.0 |
| 2,4-DIMETHYLHEPTANE | 10.5 | 0.3 | 0.3 | 0.3 | 0.4 | 2.7 | 0.7 | 0.8 |
| 4-METHYLOCTANE | 21.9 | 5.1 | * | 3.4 | 5.3 | 21.0 | 6.0 | 6.1 |
| 3-METHYLOCTANE | 10.8 | 2.2 | 1.3 | 1.8 | 2.7 | 12.4 | 3.7 | 3.9 |
| n-NONANE | 20.5 | 4.0 | 26.9 | 11.1 | 6.4 | 40.9 | 8.6 | 9.7 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 25.8 | 9.7 | 28.9 | 10.3 | 8.3 | 67.2 | 13.8 | 11.8 |
| SUM OTHER PARAFFINS | 672.2 | 131.7 | 576.4 | 174.8 | 82.6 | 518.9 | 110.0 | 112.1 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 26.7 | 39.1 | 17.0 | 30.6 | 26.3 | 35.4 | 37.6 | 42.4 |
| PROPENE | 8.4 | 13.9 | 9.6 | 10.6 | 8.7 | 13.1 | 11.0 | 13.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.2 | 10.3 | 6.8 | 7.9 | 6.8 | 13.4 | 8.0 | 9.8 |
| 1,3-BUTADIENE | 3.3 | 2.9 | 2.5 | 2.6 | 1.8 | 3.0 | 1.9 | 3.0 |
| t-2-BUTENE | 3.7 | 4.3 | 1.9 | 3.7 | 3.0 | 7.5 | 2.4 | 4.3 |
| c-2-BUTENE | 2.6 | 3.3 | 1.3 | 2.6 | 2.0 | * | 2.2 | 2.9 |
| 1-PENTENE | 2.1 | 3.4 | 1.1 | 2.9 | 1.7 | 2.0 | 2.8 | 2.5 |
| 2-METHYL-1-BUTENE | 3.2 | 4.1 | 1.7 | 3.3 | 2.8 | 5.1 | 4.0 | 4.5 |
| ISOPRENE | 16.8 | 5.6 | 15.1 | 6.5 | 4.7 | 3.2 | 3.6 | 2.4 |
| t-2-PENTENE | 1.9 | 5.1 | 0.8 | 7.9 | 3.6 | 21.2 | 4.9 | 5.3 |
| c-2-PENTENE | 2.9 | 5.0 | 2.2 | 5.4 | 5.1 | * | 6.5 | 5.7 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.4 | 1.2 | * | 0.8 | 0.7 | 1.6 | 1.0 | 1.1 |
| 2-METHYL-2-PENTENE | 2.6 | 2.2 | 1.5 | 1.6 | 1.7 | 3.3 | 2.1 | 2.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 13.8 | 2.5 | 33.6 | 2.3 | 1.0 | 64.2 | 2.8 | 2.9 |
| a-PINENE | 5.2 | 2.7 | 18.9 | 2.0 | 1.5 | 7.8 | 1.4 | 1.3 |
| SUM OTHER OLEFINS | 503.2 | 81.5 | 191.8 | 81.5 | 56.3 | 411.8 | 58.6 | 57.6 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 35.9 | 20.6 | 8.3 | 18.8 | 15.2 | 30.4 | 21.4 | 22.6 |
| TOLUENE | 949.6 | 72.9 | 38.0 | 48.5 | 39.8 | 336.9 | 55.2 | 68.8 |
| ETHYLBENZENE | 43.6 | 14.6 | 5.4 | 9.1 | 8.3 | 39.2 | 11.5 | 17.0 |
| m&p-XYLENE | 131.5 | 47.5 | 18.1 | 31.1 | 30.5 | 105.4 | 40.7 | 52.0 |
| o-XYLENE | 27.0 | 16.8 | 13.0 | 15.7 | 10.8 | 44.2 | 15.2 | 18.2 |
| n-PROPYLBENZENE | 5.8 | 4.2 | 1.7 | 9.0 | 2.6 | 36.4 | 3.9 | 3.9 |
| m-ETHYLTOLUENE | 17.2 | 11.8 | 8.0 | 29.8 | 8.3 | 83.3 | 11.4 | 12.1 |
| p-ETHYLTOLUENE | 11.1 | 7.9 | 17.0 | 17.1 | 5.2 | 53.9 | 7.1 | 7.0 |
| 1,3,5-TRIMETHYLBENZENE | 8.2 | 6.2 | 2.8 | 15.3 | 4.7 | 51.4 | 6.7 | 7.0 |
| o-ETHYLTOLUENE | 14.4 | 6.1 | 5.4 | 11.7 | 4.3 | 42.5 | 5.9 | 5.8 |
| 1,2,4-TRIMETHYLBENZENE | 32.0 | 19.1 | 28.7 | 43.0 | 14.4 | 81.4 | 18.8 | 19.5 |
| n-DECANE | 10.0 | 9.6 | 16.4 | 14.5 | 6.6 | 40.7 | 8.2 | 7.5 |
| 1,4-DIETHYLBENZENE | 10.2 | 6.0 | 12.3 | 8.6 | 4.5 | 29.7 | 6.0 | 6.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 17.5 | 3.3 | 6.7 | 2.9 | 2.5 | 40.5 | 3.4 | 2.5 |
| SUM OTHER AROMATICS | 217.9 | 129.6 | 681.8 | 176.1 | 90.9 | 529.6 | 118.5 | 98.7 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 20.7 | 35.4 | 9.9 | 29.7 | 22.3 | 34.9 | 29.8 | 37.8 |
| SUM UNKNOWNS | 35.2 | 9.6 | 96.7 | 11.0 | 0.6 | 1036.1 | 1.1 | 1.7 |
| SUM PARAFFINS | 1679.9 | 500.3 | 865.9 | 507.8 | 369.1 | 1810.0 | 519.7 | 548.5 |
| SUM OLEFINS | 607.8 | 187.6 | 306.5 | 172.7 | 128.4 | 593.2 | 151.7 | 161.9 |
| SUM AROMATICS | 1532.6 | 376.8 | 864.3 | 451.8 | 249.3 | 1546.0 | 334.4 | 349.9 |
| SUM HYDROCARBONS | 3877.9 | 1110.0 | 2143.5 | 1173.3 | 769.8 | 5025.5 | 1037.0 | 1100.0 |

TABLE A-13b. Hydrocarbon concentration data for CHATTANOOGA, TN

| Compound | ID Number and Sample Date<br>2393<br>84/09/21 | <br>2418<br>84/09/24 | <br>2450<br>84/09/25 | <br>2459<br>84/09/26 |
|---|---|---|---|---|
| PARAFFINS | | | | |
| ETHANE | 62.6 | 33.6 | 52.3 | 19.6 |
| PROPANE | 56.6 | 38.1 | 51.8 | 16.5 |
| ISOBUTANE | 27.8 | 20.2 | 32.1 | 12.4 |
| n-BUTANE | 107.7 | 78.2 | 130.1 | 54.9 |
| ISOPENTANE | 113.7 | 83.2 | 141.3 | 58.5 |
| n-PENTANE | 56.8 | 39.8 | 72.9 | 27.2 |
| 2,2-DIMETHYLBUTANE | 4.9 | 4.0 | 8.6 | 2.5 |
| CYCLOPENTANE | 5.1 | 3.8 | 6.5 | 2.5 |
| 2,3-DIMETHYLBUTANE | 11.7 | 10.5 | 46.5 | 7.6 |
| 2-METHYLPENTANE | 44.1 | 47.0 | 133.1 | 27.1 |
| 3-METHYLPENTANE | 34.9 | 44.5 | 156.3 | 21.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 35.6 | 77.9 | 78.6 | 15.5 |
| METHYLCYCLOPENTANE | 19.7 | 30.8 | 43.4 | 9.4 |
| 2,4-DIMETHYLPENTANE | 7.5 | 5.9 | 16.4 | 4.9 |
| CYCLOHEXANE | 5.0 | 6.4 | 6.9 | 1.9 |
| 2-METHYLHEXANE | 15.5 | 10.1 | 19.8 | 7.4 |
| 2,3-DIMETHYLPENTANE | 12.0 | 7.7 | 14.4 | 5.7 |
| 3-METHYLHEXANE | 17.1 | 11.6 | 21.7 | 9.0 |
| 2,2,4-TRIMETHYLPENTANE | 23.7 | 15.6 | 26.3 | 13.5 |
| n-HEPTANE | 15.5 | 8.7 | 15.4 | 6.8 |
| METHYLCYCLOHEXANE | 13.0 | 5.1 | 10.1 | 3.8 |
| 2,5-DIMETHYLHEXANE | 5.8 | 3.4 | 5.9 | 2.7 |
| 2,4-DIMETHYLHEXANE | 6.1 | 3.7 | 6.4 | 3.1 |
| 2,3,4-TRIMETHYLPENTANE | 8.4 | 5.2 | 9.3 | 4.7 |
| 2-METHYLHEPTANE | 12.2 | 4.2 | 8.1 | 3.5 |
| 3-METHYLHEPTANE | 12.9 | 4.7 | 9.0 | 3.8 |
| 2,2,5-TRIMETHYLHEXANE | 4.6 | 2.0 | 4.7 | 1.9 |
| n-OCTANE | 17.3 | 3.5 | 7.9 | 2.4 |
| 2,4-DIMETHYLHEPTANE | 3.2 | 0.3 | 0.7 | 0.4 |
| 4-METHYLOCTANE | 28.2 | 3.6 | 6.2 | 2.7 |
| 3-METHYLOCTANE | 20.9 | 2.5 | 4.3 | 1.8 |
| n-NONANE | 12.2 | 4.1 | 9.8 | 2.1 |
| 4-METHYLNONANE | * | * | * | * |
| n-DECANE | 22.2 | 11.8 | 27.3 | 7.4 |
| SUM OTHER PARAFFINS | 225.6 | 97.5 | 221.8 | 100.4 |

|  |  |  |  |  |
|---|---|---|---|---|
| OLEFINS |  |  |  |  |
| ETHYLENE | 61.4 | 38.6 | 69.9 | 38.9 |
| PROPENE | 20.1 | 13.4 | 27.8 | 12.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 14.3 | 10.0 | 19.0 | 9.0 |
| 1,3-BUTADIENE | 4.4 | 10.5 | 13.7 | 2.4 |
| t-2-BUTENE | 5.4 | 5.5 | 9.9 | 2.9 |
| c-2-BUTENE | 4.9 | 4.6 | 7.5 | 2.7 |
| 1-PENTENE | 4.4 | 3.1 | 5.6 | 2.7 |
| 2-METHYL-1-BUTENE | 7.2 | 5.3 | 9.3 | 5.7 |
| ISOPRENE | 4.2 | 3.3 | 4.9 | 2.8 |
| t-2-PENTENE | 6.7 | 5.4 | 11.5 | 5.0 |
| c-2-PENTENE | 7.6 | 8.1 | 10.8 | 7.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | 2.0 | 1.2 | 2.4 | 0.9 |
| 2-METHYL-2-PENTENE | 3.6 | 3.3 | 4.8 | 2.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 5.1 | 7.6 | 6.7 | 2.4 |
| a-PINENE | 4.8 | 6.3 | 5.2 | 1.3 |
| SUM OTHER OLEFINS | 96.3 | 76.8 | 110.9 | 54.6 |
| AROMATICS |  |  |  |  |
| BENZENE | 65.4 | 25.6 | 43.6 | 19.1 |
| TOLUENE | 217.9 | 65.1 | 132.6 | 55.9 |
| ETHYLBENZENE | 29.2 | 12.0 | 22.3 | 10.1 |
| m&p-XYLENE | 95.8 | 36.2 | 72.1 | 34.0 |
| o-XYLENE | 31.9 | 14.1 | 28.0 | 13.6 |
| n-PROPYLBENZENE | 7.6 | 3.8 | 9.2 | 2.9 |
| m-ETHYLTOLUENE | 20.6 | 11.8 | 24.0 | 10.2 |
| p-ETHYLTOLUENE | 12.2 | 6.7 | 14.3 | 6.2 |
| 1,3,5-TRIMETHYLBENZENE | 13.1 | 6.5 | 14.5 | 5.3 |
| o-ETHYLTOLUENE | 10.5 | 5.9 | 12.2 | 4.7 |
| 1,2,4-TRIMETHYLBENZENE | 35.7 | 18.9 | 40.0 | 18.7 |
| n-DECANE | 13.3 | 8.1 | 16.1 | 8.0 |
| 1,4-DIETHYLBENZENE | 11.2 | 6.3 | 11.9 | 5.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 6.9 | 3.9 | 9.2 | 1.5 |
| SUM OTHER AROMATICS | 308.5 | 109.1 | 250.5 | 119.9 |
| SUMMARY |  |  |  |  |
| ACETYLENE | 51.2 | 31.2 | 59.5 | 35.6 |
| SUM UNKNOWNS | 8.3 | 4.7 | 16.1 | 10.0 |
| SUM PARAFFINS | 1071.3 | 730.6 | 1407.4 | 466.3 |
| SUM OLEFINS | 252.9 | 203.5 | 320.6 | 153.7 |
| SUM AROMATICS | 880.3 | 334.5 | 701.0 | 316.5 |
| SUM HYDROCARBONS | 2264.7 | 1304.7 | 2506.8 | 982.3 |

TABLE A-14a. Hydrocarbon concentration data for CLEVELAND, OH

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1211 85/06/14 | 1266 85/06/21 | 1309 85/06/25 | 1374 85/07/01 | 1558 85/07/09 | 1601 85/07/17 | 1694 85/07/22 | 1896 85/08/01 |
| PARAFFINS | | | | | | | | |
| ETHANE | 15.9 | 81.1 | 117.5 | 41.3 | 32.6 | 131.2 | 13.5 | 11.7 |
| PROPANE | 14.5 | 54.2 | 70.8 | 29.0 | 29.8 | 89.8 | 8.9 | 7.6 |
| ISOBUTANE | 12.4 | 30.5 | 46.3 | 20.0 | 26.5 | 86.5 | 8.3 | 7.0 |
| n-BUTANE | 42.5 | 82.7 | 124.7 | 47.9 | 53.6 | 171.8 | 21.0 | 18.1 |
| ISOPENTANE | 40.8 | 72.7 | 117.0 | 46.7 | 54.9 | 184.8 | 25.9 | 20.8 |
| n-PENTANE | 16.7 | 33.8 | 49.6 | 20.7 | 23.6 | 66.0 | 9.6 | 7.6 |
| 2,2-DIMETHYLBUTANE | 1.1 | 2.0 | 3.0 | 1.2 | 1.4 | 3.3 | 0.5 | 0.3 |
| CYCLOPENTANE | 1.3 | 2.5 | 3.7 | 1.4 | 1.8 | 5.2 | 0.8 | 0.5 |
| 2,3-DIMETHYLBUTANE | 3.8 | 6.6 | 10.2 | 4.0 | 4.8 | 13.3 | 2.2 | 1.7 |
| 2-METHYLPENTANE | 13.8 | 25.7 | 37.0 | 15.7 | 17.9 | 48.2 | 8.7 | 6.4 |
| 3-METHYLPENTANE | 13.5 | 20.7 | 30.1 | 8.5 | 13.9 | 38.2 | 6.6 | 4.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.7 | 18.9 | 22.9 | 11.2 | 11.1 | 28.7 | 4.7 | 3.4 |
| METHYLCYCLOPENTANE | 6.0 | 11.2 | 15.8 | 6.8 | 7.9 | 20.3 | 3.7 | 2.6 |
| 2,4-DIMETHYLPENTANE | 2.9 | 4.2 | 8.8 | 2.2 | 2.6 | 7.2 | 1.3 | 1.0 |
| CYCLOHEXANE | 1.4 | 3.2 | 3.9 | 2.4 | 1.7 | 5.6 | 0.6 | 0.4 |
| 2-METHYLHEXANE | 4.9 | 10.6 | 15.5 | 9.3 | 11.3 | 24.9 | 6.1 | 5.7 |
| 2,3-DIMETHYLPENTANE | 2.5 | 4.9 | 7.0 | * | * | * | * | * |
| 3-METHYLHEXANE | 8.0 | 10.5 | 14.7 | 7.1 | 6.8 | 15.8 | 3.5 | 2.7 |
| 2,2,4-TRIMETHYLPENTANE | 6.3 | 10.6 | 15.3 | 5.7 | 6.6 | 15.6 | 3.2 | 2.3 |
| n-HEPTANE | 4.7 | 10.0 | 12.6 | 6.5 | 4.9 | 14.6 | 2.1 | 1.4 |
| METHYLCYCLOHEXANE | 2.6 | 6.6 | 7.6 | 5.1 | 3.1 | 10.0 | 1.4 | 1.0 |
| 2,5-DIMETHYLHEXANE | 1.5 | 2.7 | 3.9 | 2.0 | 1.9 | 4.5 | 0.9 | 0.7 |
| 2,4-DIMETHYLHEXANE | 1.8 | 2.8 | 4.0 | 1.7 | 1.9 | 4.7 | 0.8 | 0.6 |
| 2,3,4-TRIMETHYLPENTANE | 2.2 | 3.9 | 5.6 | 2.2 | 2.2 | 6.3 | 1.9 | 1.4 |
| 2-METHYLHEPTANE | 2.4 | 4.0 | 6.0 | 2.8 | 2.6 | 9.2 | 2.0 | 0.6 |
| 3-METHYLHEPTANE | 2.5 | 4.4 | 6.8 | 2.8 | 3.0 | 7.3 | 1.6 | 1.2 |
| 2,2,5-TRIMETHYLHEXANE | 1.2 | 1.7 | 3.1 | 1.0 | 1.2 | 3.2 | 0.5 | 0.4 |
| n-OCTANE | 3.0 | 4.5 | 6.0 | 5.1 | 3.5 | 9.1 | 1.5 | 1.2 |
| 2,4-DIMETHYLHEPTANE | * | 0.5 | 0.5 | * | * | * | 1.5 | * |
| 4-METHYLOCTANE | 1.9 | 3.1 | 4.9 | 3.2 | 2.1 | 5.4 | 1.0 | 0.9 |
| 3-METHYLOCTANE | 1.3 | 2.2 | 4.1 | 3.3 | 1.9 | 4.4 | 0.9 | 0.8 |
| n-NONANE | 2.3 | * | 8.2 | 7.5 | 1.8 | 9.1 | 1.1 | 1.7 |
| 4-METHYLNONANE | * | * | * | 1.8 | * | * | 0.4 | * |
| n-DECANE | 13.2 | 7.2 | 14.1 | 10.0 | 2.9 | 17.6 | 1.6 | 2.9 |
| SUM OTHER PARAFFINS | 51.5 | 88.3 | 102.9 | 58.2 | 65.8 | 134.8 | 11.2 | 12.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 22.4 | 44.2 | 76.3 | 23.2 | 31.5 | 60.7 | 16.0 | 9.9 |
| PROPENE | 7.0 | 12.7 | 16.3 | 6.5 | 9.1 | 16.9 | 4.3 | 2.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.2 | 8.6 | 11.5 | 5.2 | 7.3 | 21.5 | 3.7 | 3.1 |
| 1,3-BUTADIENE | 1.3 | 7.6 | 2.4 | 1.3 | 1.8 | 3.6 | 0.4 | 0.2 |
| t-2-BUTENE | 1.8 | 3.9 | 5.9 | 2.4 | 2.7 | 14.0 | * | 0.8 |
| c-2-BUTENE | 1.2 | 2.7 | 4.4 | 1.7 | 1.9 | 10.6 | 0.9 | 0.6 |
| 1-PENTENE | 1.6 | 1.4 | 3.1 | 1.0 | 1.9 | 4.3 | 0.6 | 0.4 |
| 2-METHYL-1-BUTENE | 1.4 | 3.2 | 5.2 | 2.0 | 3.9 | 13.1 | 1.4 | 0.9 |
| ISOPRENE | 1.0 | 1.5 | 2.1 | 0.7 | 1.1 | 2.4 | 0.5 | 1.5 |
| t-2-PENTENE | 1.7 | 3.3 | 5.5 | 2.0 | 2.3 | 9.5 | 1.2 | 0.8 |
| c-2-PENTENE | 1.7 | 2.7 | 4.6 | 1.6 | 3.9 | 9.3 | 2.1 | 1.7 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 2.1 | 1.0 | 2.0 | 0.1 | 0.2 | 6.2 | * | * |
| 2-METHYL-2-PENTENE | 1.1 | 2.5 | 2.6 | 0.7 | 0.8 | 3.7 | 0.5 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.6 | 5.1 | 8.2 | 7.1 | 2.3 | 14.0 | 1.5 | 2.0 |
| a-PINENE | 3.1 | 7.7 | 3.8 | 2.6 | 1.9 | 4.4 | 2.4 | 0.6 |
| SUM OTHER OLEFINS | 47.7 | 53.8 | 53.8 | 26.9 | 37.6 | 66.0 | 17.8 | 11.6 |
| AROMATICS | | | | | | | | |
| BENZENE | 12.9 | 45.3 | 53.0 | 23.1 | 17.0 | 60.9 | 7.8 | 5.2 |
| TOLUENE | 41.9 | 67.3 | 99.4 | 38.8 | 42.1 | 105.4 | 20.7 | 18.6 |
| ETHYLBENZENE | 7.0 | 12.6 | 17.8 | 7.4 | 7.8 | 18.9 | 4.1 | 2.9 |
| m&p-XYLENE | 25.1 | 44.4 | 62.1 | 26.1 | 27.5 | 66.3 | 15.9 | 11.3 |
| o-XYLENE | 9.6 | 14.9 | 21.5 | 8.2 | 10.2 | 21.9 | 7.1 | 5.5 |
| n-PROPYLBENZENE | 1.4 | 2.8 | 4.5 | 2.0 | 1.7 | 9.0 | 1.0 | 0.7 |
| m-ETHYLTOLUENE | 5.9 | 13.2 | 15.0 | 6.2 | 6.9 | 16.9 | 4.5 | 2.9 |
| p-ETHYLTOLUENE | 4.0 | 5.8 | 9.1 | 4.8 | 3.7 | 10.2 | 2.3 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 3.7 | 6.7 | 10.6 | 4.1 | 4.1 | 14.0 | 2.5 | 2.2 |
| o-ETHYLTOLUENE | 3.5 | 5.6 | 8.3 | 4.5 | 3.5 | 9.9 | 1.9 | 1.7 |
| 1,2,4-TRIMETHYLBENZENE | 10.2 | 16.5 | 27.0 | 11.8 | 12.9 | 32.1 | 8.2 | 6.0 |
| n-DECANE | 40.3 | * | 44.0 | 49.1 | 3.2 | 12.0 | 1.9 | 0.9 |
| 1,4-DIETHYLBENZENE | 4.4 | 6.3 | 7.9 | 4.2 | 4.1 | 9.9 | 1.9 | 1.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 7.5 | 6.7 | 8.2 | 5.0 | 2.2 | 13.2 | 1.4 | 1.6 |
| SUM OTHER AROMATICS | 69.0 | 479.3 | 111.3 | 51.3 | 48.9 | 152.8 | 35.5 | 19.6 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 17.0 | 26.0 | 34.2 | 13.3 | 17.2 | 39.0 | 7.4 | 6.7 |
| SUM UNKNOWNS | 8.1 | 38.2 | 6.3 | 4.9 | 11.8 | 16.3 | 4.7 | 1.7 |
| SUM PARAFFINS | 310.8 | 630.4 | 905.5 | 396.0 | 408.9 | 1197.4 | 161.0 | 132.1 |
| SUM OLEFINS | 103.6 | 162.7 | 208.3 | 85.6 | 110.7 | 261.0 | 54.0 | 37.5 |
| SUM AROMATICS | 247.1 | 728.0 | 500.2 | 247.3 | 196.5 | 553.9 | 117.3 | 82.4 |
| SUM HYDROCARBONS | 686.8 | 1586.2 | 1655.5 | 747.5 | 745.3 | 2067.7 | 344.6 | 260.6 |

TABLE A-14b. Hydrocarbon concentration data for CLEVELAND, OH

| Compound | 1959<br>85/08/07 | 2126<br>85/08/16 | 2135CS0<br>85/08/19 | 2219<br>85/08/22 | 2262RA0<br>85/08/27 | 2331<br>85/09/03 | 2570<br>85/09/20 | 2621<br>85/09/25 |
|---|---|---|---|---|---|---|---|---|
| | ID Number and Sample Date | | | | | | | |
| PARAFFINS | | | | | | | | |
| ETHANE | 24.1 | 27.3 | 60.6 | 62.1 | 29.6 | 73.8 | 109.9 | 115.0 |
| PROPANE | 17.8 | 18.8 | 38.9 | 97.2 | 23.8 | 51.0 | 69.4 | 65.1 |
| ISOBUTANE | 19.5 | 13.2 | 29.2 | 94.3 | 21.3 | 40.6 | 58.8 | 36.3 |
| n-BUTANE | 70.2 | 34.2 | 78.1 | 363.9 | 70.2 | 100.2 | 132.8 | 89.3 |
| ISOPENTANE | 61.5 | 40.7 | 77.8 | 261.3 | 62.7 | 90.9 | 133.8 | 91.6 |
| n-PENTANE | 21.5 | 15.6 | 30.5 | 89.6 | 24.2 | 34.5 | 51.8 | 38.8 |
| 2,2-DIMETHYLBUTANE | 1.0 | 0.8 | 1.8 | 4.9 | 1.3 | 1.9 | 3.0 | 2.3 |
| CYCLOPENTANE | 1.7 | 1.2 | 2.5 | 6.5 | 2.0 | 2.8 | 4.3 | 3.4 |
| 2,3-DIMETHYLBUTANE | 4.5 | 3.7 | 7.0 | 17.9 | 5.2 | 6.8 | 10.7 | 8.5 |
| 2-METHYLPENTANE | 15.4 | 13.1 | 26.6 | 68.0 | 19.0 | 24.1 | 40.1 | 34.0 |
| 3-METHYLPENTANE | 9.4 | 9.0 | 16.0 | 46.7 | 30.0 | 14.7 | 26.2 | 28.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.6 | 6.9 | 14.8 | 26.9 | 9.5 | 13.1 | 26.0 | 28.0 |
| METHYLCYCLOPENTANE | 5.8 | 5.2 | 11.0 | 18.4 | 7.0 | 9.5 | 16.6 | 15.6 |
| 2,4-DIMETHYLPENTANE | 2.4 | 2.1 | 4.4 | 8.6 | 3.1 | 3.9 | 6.7 | 5.6 |
| CYCLOHEXANE | 1.0 | 0.8 | 2.2 | 3.0 | 1.2 | 2.0 | 4.1 | 5.4 |
| 2-METHYLHEXANE | 9.3 | 7.9 | 11.6 | 16.1 | 12.0 | 10.1 | 25.7 | 23.3 |
| 2,3-DIMETHYLPENTANE | * | * | 6.2 | 11.6 | * | * | * | * |
| 3-METHYLHEXANE | 5.1 | 4.9 | 10.0 | 14.9 | 6.5 | 8.2 | 14.4 | 12.6 |
| 2,2,4-TRIMETHYLPENTANE | 5.4 | 5.1 | 12.1 | 16.4 | 5.2 | 9.0 | 12.8 | 10.2 |
| n-HEPTANE | 3.1 | 4.4 | 7.8 | 10.1 | 4.8 | 6.5 | 12.7 | 11.0 |
| METHYLCYCLOHEXANE | 2.1 | 1.8 | 3.8 | 5.7 | 2.4 | 4.0 | 6.5 | 6.9 |
| 2,5-DIMETHYLHEXANE | 1.4 | 1.4 | 2.8 | 3.6 | 1.8 | 2.2 | 3.6 | 3.2 |
| 2,4-DIMETHYLHEXANE | 1.4 | 1.3 | 2.9 | 3.6 | 1.8 | 2.2 | 3.7 | 3.1 |
| 2,3,4-TRIMETHYLPENTANE | 2.5 | 2.4 | 4.3 | 5.4 | 2.7 | 3.3 | 5.2 | 4.4 |
| 2-METHYLHEPTANE | 2.1 | 1.0 | 4.3 | 5.2 | 2.4 | 3.3 | 7.6 | 5.4 |
| 3-METHYLHEPTANE | 2.3 | 2.2 | 4.9 | 5.9 | 2.9 | 3.5 | 6.3 | 5.8 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 0.9 | 1.9 | 2.2 | 1.1 | 1.4 | 2.6 | 2.3 |
| n-OCTANE | 2.1 | 1.9 | 7.2 | 7.1 | 3.0 | 2.5 | 6.5 | 6.4 |
| 2,4-DIMETHYLHEPTANE | * | * | * | 2.0 | * | * | * | * |
| 4-METHYLOCTANE | 1.4 | 1.1 | 3.2 | 3.3 | 1.6 | 2.2 | 4.5 | 3.5 |
| 3-METHYLOCTANE | 1.1 | 1.0 | 2.5 | 2.6 | 1.3 | 1.8 | 3.8 | 2.9 |
| n-NONANE | 1.6 | 1.2 | 4.1 | 4.2 | 2.0 | 2.2 | 7.0 | 5.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.1 | 1.9 | 6.7 | 4.6 | 2.3 | 3.2 | 10.8 | 9.1 |
| SUM OTHER PARAFFINS | 18.6 | 16.4 | 44.9 | 45.8 | 21.1 | 34.3 | 65.4 | 66.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 19.9 | 22.2 | 36.5 | 47.1 | 26.6 | 40.6 | 47.7 | 53.9 |
| PROPENE | 7.8 | 4.6 | 14.5 | 15.0 | 10.4 | 10.4 | 14.4 | 14.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 5.2 | 3.5 | 9.1 | 11.7 | 6.3 | 8.7 | 13.0 | 9.7 |
| 1,3-BUTADIENE | 1.5 | 0.7 | 3.1 | 3.0 | 1.9 | 1.7 | 3.1 | 2.0 |
| t-2-BUTENE | 2.3 | 1.4 | 4.1 | 7.7 | 2.3 | 4.0 | 7.5 | 5.0 |
| c-2-BUTENE | 1.7 | 1.1 | 2.7 | 5.1 | 1.5 | 2.8 | 5.5 | 3.7 |
| 1-PENTENE | 1.4 | 0.9 | 1.8 | 5.3 | 1.3 | 1.9 | 3.1 | 2.3 |
| 2-METHYL-1-BUTENE | 2.0 | 1.6 | 3.4 | 5.1 | 2.4 | 3.3 | 5.8 | 3.9 |
| ISOPRENE | 0.9 | 0.5 | 1.4 | 2.0 | 1.0 | 1.7 | 2.0 | 1.3 |
| t-2-PENTENE | 2.9 | 1.8 | 4.3 | * | 2.9 | 3.6 | 6.0 | 4.5 |
| c-2-PENTENE | 4.7 | 2.7 | 0.1 | * | 4.7 | 0.7 | 3.9 | 4.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.8 | 0.3 | 2.9 | 5.8 | 4.7 | 1.2 | 6.1 | 5.4 |
| 2-METHYL-2-PENTENE | 0.8 | 0.7 | 1.7 | 4.1 | 1.0 | 1.2 | 2.1 | 4.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.4 | 2.1 | 3.5 | 3.4 | 1.9 | 3.8 | 12.7 | 10.4 |
| a-PINENE | 1.1 | 0.0 | 1.9 | 0.8 | 0.0 | 1.6 | 1.6 | 1.0 |
| SUM OTHER OLEFINS | 20.4 | 9.4 | 35.4 | 51.4 | 17.3 | 32.6 | 42.6 | 29.8 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 12.8 | 10.1 | 23.7 | 37.1 | 16.7 | 29.8 | 44.0 | 47.9 |
| TOLUENE | 34.5 | 30.9 | 65.9 | 78.1 | 41.5 | 50.3 | 86.3 | 95.9 |
| ETHYLBENZENE | 5.8 | 4.8 | 11.8 | 12.8 | 7.1 | 9.3 | 15.6 | 17.8 |
| m&p-XYLENE | 21.3 | 18.0 | 41.7 | 43.0 | 25.1 | 29.8 | 52.9 | 58.3 |
| o-XYLENE | 8.3 | 8.0 | 16.5 | 17.4 | 9.5 | 11.8 | 20.0 | 20.1 |
| n-PROPYLBENZENE | 1.3 | 1.2 | 3.2 | 3.2 | 1.5 | 2.1 | 6.8 | 3.3 |
| m-ETHYLTOLUENE | 5.8 | 4.2 | 11.3 | 9.2 | 5.7 | 8.4 | 13.9 | 12.6 |
| p-ETHYLTOLUENE | 2.9 | 1.3 | 5.8 | 3.1 | 1.8 | 4.3 | 7.8 | 6.9 |
| 1,3,5-TRIMETHYLBENZENE | 3.7 | 2.5 | 7.5 | 5.7 | 3.6 | 5.2 | 10.1 | 9.3 |
| o-ETHYLTOLUENE | 2.6 | 2.6 | 5.5 | 5.7 | 3.3 | 3.7 | 7.2 | 6.5 |
| 1,2,4-TRIMETHYLBENZENE | 10.7 | 2.9 | 21.6 | 11.8 | 7.6 | 15.0 | 32.8 | 25.1 |
| n-DECANE | 3.0 | 2.3 | 5.5 | 4.0 | 3.3 | 4.0 | 9.2 | 6.6 |
| 1,4-DIETHYLBENZENE | 2.6 | 2.3 | 5.1 | 4.9 | 3.1 | 3.8 | 7.2 | 5.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.3 | * | 4.3 | 4.1 | 2.3 | 2.0 | 5.9 | 5.6 |
| SUM OTHER AROMATICS | 26.5 | 23.7 | 42.9 | 39.5 | 30.0 | 49.9 | 96.2 | 89.9 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 17.2 | 13.8 | 31.7 | 27.0 | 20.7 | 25.8 | 40.7 | 39.5 |
| SUM UNKNOWNS | 1.9 | 2.2 | 4.6 | 19.8 | 5.2 | 6.9 | 12.2 | 13.9 |
| SUM PARAFFINS | 327.3 | 251.0 | 544.2 | 1340.9 | 386.3 | 571.0 | 894.5 | 751.3 |
| SUM OLEFINS | 77.4 | 54.0 | 126.8 | 168.1 | 87.1 | 120.5 | 177.7 | 156.7 |
| SUM AROMATICS | 143.8 | 115.4 | 272.8 | 280.0 | 162.7 | 230.1 | 416.5 | 412.4 |
| SUM HYDROCARBONS | 567.9 | 436.7 | 980.3 | 1836.0 | 662.1 | 954.4 | 1541.9 | 1374.0 |

TABLE A-14c. Hydrocarbon concentration data for CLEVELAND, OH

| Compound | ID Number and Sample Date |
|---|---|
| | 2622RA0<br>85/09/25 |
| PARAFFINS | |
| ETHANE | 116.7 |
| PROPANE | 65.9 |
| ISOBUTANE | 37.0 |
| n-BUTANE | 90.5 |
| ISOPENTANE | 92.8 |
| n-PENTANE | 39.3 |
| 2,2-DIMETHYLBUTANE | 2.3 |
| CYCLOPENTANE | 3.4 |
| 2,3-DIMETHYLBUTANE | 8.6 |
| 2-METHYLPENTANE | 34.6 |
| 3-METHYLPENTANE | 28.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 28.3 |
| METHYLCYCLOPENTANE | 15.9 |
| 2,4-DIMETHYLPENTANE | 6.1 |
| CYCLOHEXANE | 6.3 |
| 2-METHYLHEXANE | 23.6 |
| 2,3-DIMETHYLPENTANE | * |
| 3-METHYLHEXANE | 13.2 |
| 2,2,4-TRIMETHYLPENTANE | 10.8 |
| n-HEPTANE | 13.1 |
| METHYLCYCLOHEXANE | 7.3 |
| 2,5-DIMETHYLHEXANE | 3.3 |
| 2,4-DIMETHYLHEXANE | 3.3 |
| 2,3,4-TRIMETHYLPENTANE | 4.4 |
| 2-METHYLHEPTANE | 7.3 |
| 3-METHYLHEPTANE | 6.0 |
| 2,2,5-TRIMETHYLHEXANE | 2.4 |
| n-OCTANE | 7.9 |
| 2,4-DIMETHYLHEPTANE | * |
| 4-METHYLOCTANE | 3.7 |
| 3-METHYLOCTANE | 3.1 |
| n-NONANE | 6.4 |
| 4-METHYLNONANE | * |
| n-DECANE | 9.7 |
| SUM OTHER PARAFFINS | 74.4 |

| OLEFINS | |
|---|---|
| ETHYLENE | 53.9 |
| PROPENE | 15.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 10.3 |
| 1,3-BUTADIENE | 2.2 |
| t-2-BUTENE | 5.1 |
| c-2-BUTENE | 3.7 |
| 1-PENTENE | 2.3 |
| 2-METHYL-1-BUTENE | 3.9 |
| ISOPRENE | 1.3 |
| t-2-PENTENE | 4.6 |
| c-2-PENTENE | 8.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 4.4 |
| 2-METHYL-2-PENTENE | 4.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 10.3 |
| a-PINENE | 1.3 |
| SUM OTHER OLEFINS | 30.7 |

| AROMATICS | |
|---|---|
| BENZENE | 48.5 |
| TOLUENE | 97.1 |
| ETHYLBENZENE | 18.1 |
| m&p-XYLENE | 59.3 |
| o-XYLENE | 20.1 |
| n-PROPYLBENZENE | 4.2 |
| m-ETHYLTOLUENE | 12.8 |
| p-ETHYLTOLUENE | 7.2 |
| 1,3,5-TRIMETHYLBENZENE | 9.3 |
| o-ETHYLTOLUENE | 6.9 |
| 1,2,4-TRIMETHYLBENZENE | 28.8 |
| n-DECANE | 8.6 |
| 1,4-DIETHYLBENZENE | 7.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 10.9 |
| SUM OTHER AROMATICS | 109.8 |

| SUMMARY | |
|---|---|
| ACETYLENE | 39.8 |
| SUM UNKNOWNS | 10.8 |
| SUM PARAFFINS | 777.7 |
| SUM OLEFINS | 163.4 |
| SUM AROMATICS | 449.7 |
| SUM HYDROCARBONS | 1441.7 |

TABLE A-15a. Hydrocarbon concentration data for CLUTE, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1048<br>85/06/05 | 1074<br>85/06/10 | 1212<br>85/06/18 | 1234<br>84/07/13 | 1358<br>85/06/27 | 1377<br>84/07/23 | 1450<br>85/07/05 | 1465<br>85/07/08 |
| PARAFFINS | | | | | | | | |
| ETHANE | 3.6 | 25.6 | 103.3 | 14.6 | 39.7 | 49.8 | 13.9 | 12.3 |
| PROPANE | 6.7 | 28.5 | 40.8 | 46.0 | 15.7 | 44.0 | 13.8 | 9.2 |
| ISOBUTANE | 1.4 | 28.0 | 5.6 | 8.0 | 5.5 | 13.3 | 6.9 | 5.5 |
| n-BUTANE | 9.3 | 19.0 | 29.5 | 28.3 | 18.7 | 24.1 | 20.5 | 25.2 |
| ISOPENTANE | 1.4 | 20.8 | 7.0 | 46.0 | 25.4 | 26.3 | 27.3 | 30.7 |
| n-PENTANE | 7.2 | 9.3 | 8.4 | 20.0 | 10.6 | 12.7 | 13.1 | 16.6 |
| 2,2-DIMETHYLBUTANE | 0.2 | 0.7 | 0.3 | 2.1 | 0.9 | 1.2 | 1.1 | 1.4 |
| CYCLOPENTANE | 0.4 | 0.7 | 0.4 | 2.3 | 1.3 | 1.3 | 1.3 | 1.5 |
| 2,3-DIMETHYLBUTANE | 0.6 | 1.5 | 0.5 | 3.9 | 2.0 | 2.2 | 2.1 | 2.5 |
| 2-METHYLPENTANE | 2.8 | 6.3 | 2.3 | 15.6 | 8.2 | 9.1 | 8.5 | 11.6 |
| 3-METHYLPENTANE | 4.1 | 5.4 | 1.5 | 9.6 | 4.7 | 7.2 | 5.0 | 6.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 1.8 | 5.2 | 2.6 | 10.1 | 4.7 | 10.0 | 6.1 | 6.9 |
| METHYLCYCLOPENTANE | 1.1 | 3.0 | 1.3 | 6.3 | 3.0 | 5.7 | 3.5 | 3.8 |
| 2,4-DIMETHYLPENTANE | 0.4 | 2.7 | 2.5 | 1.5 | 0.9 | 1.4 | 0.8 | 1.1 |
| CYCLOHEXANE | 1.8 | 50.5 | 145.9 | 10.2 | 38.5 | 4.3 | 1.3 | 6.8 |
| 2-METHYLHEXANE | 0.4 | 3.4 | 0.8 | 6.4 | 5.0 | 3.7 | 4.4 | 5.4 |
| 2,3-DIMETHYLPENTANE | * | * | 0.5 | * | * | * | * | * |
| 3-METHYLHEXANE | 4.4 | 1.8 | 1.0 | 5.1 | 3.4 | 2.9 | 2.7 | 3.7 |
| 2,2,4-TRIMETHYLPENTANE | 1.8 | 11.8 | 6.0 | 4.7 | 6.8 | 3.6 | 5.5 | 7.4 |
| n-HEPTANE | 0.5 | 1.8 | 1.0 | 3.0 | 2.4 | 2.5 | 2.2 | 3.1 |
| METHYLCYCLOHEXANE | 0.4 | 1.2 | 0.6 | 2.2 | 1.3 | 3.0 | 1.6 | 1.9 |
| 2,5-DIMETHYLHEXANE | 0.1 | 1.1 | 0.4 | 1.4 | 1.0 | 0.8 | 0.9 | 1.3 |
| 2,4-DIMETHYLHEXANE | 0.3 | 1.8 | 0.7 | 1.8 | 1.3 | 1.1 | 0.9 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 0.6 | 6.2 | 2.6 | 2.1 | 2.7 | 1.0 | 2.7 | 2.8 |
| 2-METHYLHEPTANE | 0.3 | 0.5 | 0.2 | 2.7 | 1.8 | 1.6 | 0.6 | 1.4 |
| 3-METHYLHEPTANE | 0.3 | 0.9 | 0.3 | 2.3 | 1.2 | 1.2 | 1.3 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | 0.1 | 10.2 | 5.0 | 1.2 | 3.5 | 0.4 | 0.3 | 1.6 |
| n-OCTANE | 0.4 | 2.1 | 1.2 | 1.2 | 1.1 | 1.5 | 1.0 | 1.6 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | * | * | * | 0.8 | * | 0.8 | 1.1 |
| 3-METHYLOCTANE | * | 2.0 | 2.8 | 1.0 | 1.6 | 0.5 | 1.1 | 1.2 |
| n-NONANE | 5.5 | * | 0.2 | 0.9 | 7.0 | 1.5 | 0.8 | 1.2 |
| 4-METHYLNONANE | 1.7 | * | * | * | * | * | * | * |
| n-DECANE | 0.7 | 1.2 | 1.1 | 1.2 | 1.2 | 1.0 | 0.9 | 1.5 |
| SUM OTHER PARAFFINS | 89.7 | 146.6 | 136.1 | 37.8 | 40.5 | 34.7 | 16.6 | 40.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 3.7 | 235.2 | 148.1 | 36.4 | 89.2 | 26.1 | 41.7 | 64.5 |
| PROPENE | 3.0 | 153.6 | 106.2 | 8.1 | 27.3 | * | 6.4 | 8.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 1.9 | 3.0 | 3.0 | 5.8 | 3.5 | 2.4 | 3.8 | 4.2 |
| 1,3-BUTADIENE | 0.2 | 0.7 | 2.0 | 1.4 | 0.7 | 0.7 | 1.2 | 2.8 |
| t-2-BUTENE | 0.5 | 1.6 | 0.7 | 2.7 | * | 0.9 | 1.2 | 1.8 |
| c-2-BUTENE | 0.5 | 1.4 | 0.5 | 2.0 | 0.9 | 0.4 | 0.9 | 1.2 |
| 1-PENTENE | * | 1.3 | 0.6 | 2.2 | 0.9 | 0.7 | 0.9 | 4.7 |
| 2-METHYL-1-BUTENE | 0.4 | 1.4 | 0.7 | 3.3 | 1.5 | 0.9 | 1.5 | 1.9 |
| ISOPRENE | 0.4 | 1.1 | 0.6 | 2.7 | 0.7 | 2.1 | 0.8 | 0.6 |
| t-2-PENTENE | 0.5 | 1.7 | 0.7 | 3.6 | 1.9 | 0.9 | 1.8 | 2.1 |
| c-2-PENTENE | 0.4 | 0.7 | * | 3.2 | 0.5 | 0.4 | 2.7 | 1.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | 0.4 | 2.1 | * | 0.1 | * | * | 0.2 |
| 2-METHYL-2-PENTENE | 0.2 | 1.3 | 0.1 | 1.3 | 0.6 | 0.3 | 0.4 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.8 | 5.8 | 6.1 | 2.3 | 3.1 | 2.2 | 4.3 | 5.9 |
| a-PINENE | 17.2 | 1.9 | 1.9 | 1.1 | 3.1 | 0.9 | 2.9 | 4.2 |
| SUM OTHER OLEFINS | 51.7 | 70.2 | 57.7 | 33.4 | 33.2 | 45.4 | 23.7 | 43.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 3.6 | 17.6 | 23.2 | 12.7 | 12.0 | 9.0 | 10.1 | 7.8 |
| TOLUENE | 6.1 | 30.1 | 15.2 | 24.4 | 20.1 | 14.5 | 17.9 | 20.9 |
| ETHYLBENZENE | 1.4 | 4.2 | 3.9 | 7.7 | 9.8 | 2.7 | 4.4 | 3.9 |
| m&p-XYLENE | 3.6 | 4.6 | 2.5 | 19.6 | 19.7 | 7.7 | 14.6 | 11.5 |
| o-XYLENE | * | 3.2 | 1.2 | 6.1 | 6.0 | 2.7 | 5.0 | 3.9 |
| n-PROPYLBENZENE | 1.2 | * | 0.1 | 1.4 | 0.8 | 0.8 | 0.6 | 0.8 |
| m-ETHYLTOLUENE | 3.9 | 1.8 | 0.7 | 5.3 | 3.0 | 2.7 | 2.8 | 3.2 |
| p-ETHYLTOLUENE | 1.3 | 2.1 | 0.4 | 2.8 | 1.9 | 1.5 | 1.3 | 2.0 |
| 1,3,5-TRIMETHYLBENZENE | 0.7 | 0.7 | 0.4 | 2.6 | 1.5 | 1.2 | 1.3 | 1.8 |
| o-ETHYLTOLUENE | 1.3 | 1.3 | 0.6 | 2.4 | 1.5 | 1.5 | 1.4 | 1.6 |
| 1,2,4-TRIMETHYLBENZENE | 2.1 | 2.8 | 1.5 | 7.5 | 5.2 | 3.9 | 4.9 | 5.6 |
| n-DECANE | * | 26.4 | 24.3 | 4.4 | 15.5 | 4.1 | * | 11.9 |
| 1,4-DIETHYLBENZENE | 1.6 | 1.2 | 0.8 | 2.3 | 1.9 | 1.7 | 1.7 | 2.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.3 | 0.9 | 0.7 | 1.3 | 0.5 | 1.4 | 0.5 | * |
| SUM OTHER AROMATICS | 484.6 | 56.5 | 79.9 | 45.8 | 27.8 | 26.0 | 29.2 | 39.0 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 4.9 | 3.5 | 5.3 | 12.6 | 8.7 | 6.7 | * | 14.9 |
| SUM UNKNOWNS | 26.1 | 7.9 | 2.3 | 10.3 | 2.5 | 15.7 | 10.3 | 12.6 |
| SUM PARAFFINS | 151.3 | 401.1 | 513.7 | 300.9 | 263.5 | 275.1 | 170.8 | 222.0 |
| SUM OLEFINS | 85.0 | 482.1 | 331.6 | 110.3 | 167.7 | 85.0 | 94.9 | 148.4 |
| SUM AROMATICS | 514.4 | 154.0 | 156.1 | 147.0 | 127.9 | 82.1 | 96.3 | 116.9 |
| SUM HYDROCARBONS | 781.8 | 1048.7 | 1009.1 | 581.3 | 570.5 | 464.8 | 372.5 | 515.0 |

## TABLE A-15b. Hydrocarbon concentration data for CLUTE, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1562<br>84/08/02 | 1593<br>85/07/16 | 1661<br>84/08/08 | 1724<br>85/07/24 | 1735<br>84/08/14 | 1787<br>85/07/29 | 1866<br>85/08/01 | 2012<br>85/08/09 |
| PARAFFINS | | | | | | | | |
| ETHANE | 27.1 | 14.6 | 14.3 | 12.3 | 24.1 | 151.7 | 163.8 | 248.5 |
| PROPANE | 26.5 | 14.7 | 14.0 | 7.4 | 27.5 | 46.5 | 46.7 | 72.4 |
| ISOBUTANE | 10.8 | 9.0 | 4.0 | 5.3 | 11.0 | 6.4 | 6.1 | 4.4 |
| n-BUTANE | 25.3 | 32.0 | 8.8 | 19.2 | 30.5 | 13.8 | 12.0 | 16.9 |
| ISOPENTANE | 30.7 | 48.1 | 7.8 | 16.0 | 37.7 | 13.2 | 9.9 | 11.8 |
| n-PENTANE | 16.3 | 19.1 | 4.4 | 6.8 | 19.7 | 6.7 | 6.0 | 9.9 |
| 2,2-DIMETHYLBUTANE | 3.0 | 2.3 | 0.4 | 2.1 | 1.7 | 0.8 | 0.2 | * |
| CYCLOPENTANE | 1.9 | 2.5 | 0.4 | 1.8 | 2.0 | 0.7 | 0.5 | 0.7 |
| 2,3-DIMETHYLBUTANE | 2.8 | 4.2 | 0.7 | 2.6 | 3.9 | 1.1 | 0.8 | 0.8 |
| 2-METHYLPENTANE | 11.6 | 16.6 | 3.1 | 10.8 | 15.7 | 4.5 | 3.4 | 3.8 |
| 3-METHYLPENTANE | 9.8 | 9.9 | 3.2 | 5.1 | 11.9 | 2.6 | 2.1 | 2.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 10.7 | 10.8 | 5.0 | 5.0 | 10.7 | 2.7 | 2.6 | 3.1 |
| METHYLCYCLOPENTANE | 5.8 | 6.0 | 1.9 | 3.7 | 6.6 | 1.6 | 1.4 | 1.7 |
| 2,4-DIMETHYLPENTANE | 1.0 | 1.8 | 1.3 | 0.9 | 1.4 | 0.3 | 0.3 | 0.4 |
| CYCLOHEXANE | 2.3 | 4.8 | 112.5 | 156.6 | 2.5 | 73.2 | 50.1 | 70.1 |
| 2-METHYLHEXANE | 6.8 | 10.5 | 4.0 | 9.1 | 5.9 | 3.2 | 3.1 | 4.0 |
| 2,3-DIMETHYLPENTANE | * | * | 1.8 | * | * | * | * | * |
| 3-METHYLHEXANE | 8.0 | 6.3 | 5.9 | 4.8 | 7.1 | 1.3 | 1.0 | 1.2 |
| 2,2,4-TRIMETHYLPENTANE | 4.9 | 9.3 | 35.4 | 28.8 | 5.4 | 4.6 | 3.2 | 10.7 |
| n-HEPTANE | 3.4 | 4.8 | 17.1 | 4.0 | 4.7 | 1.0 | 0.8 | 0.9 |
| METHYLCYCLOHEXANE | 3.3 | 2.5 | 2.5 | 2.3 | 2.8 | 0.7 | 0.7 | 0.9 |
| 2,5-DIMETHYLHEXANE | 1.0 | 1.6 | 3.2 | 2.5 | 1.2 | 0.3 | 0.2 | * |
| 2,4-DIMETHYLHEXANE | 1.4 | 1.8 | 5.9 | 3.7 | 1.5 | 0.5 | 0.4 | 0.6 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 3.9 | 35.8 | 15.4 | 1.5 | 1.5 | 1.1 | 1.7 |
| 2-METHYLHEPTANE | 1.4 | 2.1 | 1.0 | 1.5 | 1.8 | 0.7 | 0.3 | 0.3 |
| 3-METHYLHEPTANE | 1.7 | 2.5 | 3.2 | 2.9 | 1.9 | 0.8 | 0.8 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.2 | 0.9 | 105.6 | 35.1 | 0.4 | 2.5 | 1.2 | 1.3 |
| n-OCTANE | 1.5 | 1.4 | 24.0 | 8.6 | 1.3 | 1.3 | 0.9 | 0.9 |
| 2,4-DIMETHYLHEPTANE | * | * | 1.9 | 1.4 | * | * | 0.8 | 0.7 |
| 4-METHYLOCTANE | * | 1.6 | * | 0.5 | 1.8 | 0.2 | 0.1 | * |
| 3-METHYLOCTANE | 0.8 | 1.6 | * | 2.2 | 1.0 | 2.8 | 2.3 | 8.5 |
| n-NONANE | 1.0 | 1.3 | 0.3 | 1.6 | 3.1 | 0.5 | 0.8 | 0.3 |
| 4-METHYLNONANE | * | * | * | * | 0.7 | * | * | * |
| n-DECANE | 1.6 | 2.2 | 0.5 | 0.9 | 4.2 | 1.1 | 1.5 | 0.5 |
| SUM OTHER PARAFFINS | 45.0 | 31.4 | 140.4 | 62.1 | 37.3 | 27.0 | 41.3 | 41.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 13.0 | 22.3 | 0.9 | 673.2 | 21.9 | 242.9 | 318.1 | 326.5 |
| PROPENE | 5.6 | 8.9 | 66.3 | 51.3 | 7.5 | 115.1 | 88.9 | 215.8 |
| 2-METHYLPROPYLENE,BUTENE-1 | 3.4 | 6.2 | 4.4 | 2.2 | 3.8 | 4.3 | 5.1 | 5.6 |
| 1,3-BUTADIENE | 1.1 | 1.7 | 0.4 | 0.8 | 1.0 | 5.0 | 3.0 | 7.6 |
| t-2-BUTENE | 1.2 | 2.5 | 0.8 | 0.7 | 1.4 | 1.3 | 1.2 | 1.5 |
| c-2-BUTENE | 0.8 | 1.7 | 0.6 | 0.6 | 1.0 | 1.0 | 0.9 | 1.1 |
| 1-PENTENE | 1.1 | 1.7 | 0.4 | 0.5 | 1.0 | 1.0 | 0.9 | 1.0 |
| 2-METHYL-1-BUTENE | 1.6 | 2.8 | 0.6 | 0.9 | 1.8 | 0.8 | 0.6 | 0.6 |
| ISOPRENE | 2.0 | 2.2 | 0.5 | 0.5 | 2.3 | 1.4 | 1.2 | 1.2 |
| t-2-PENTENE | 1.7 | 3.5 | 0.6 | 1.6 | 2.0 | 1.1 | 1.0 | 1.1 |
| c-2-PENTENE | 1.4 | 6.2 | 0.4 | 0.3 | 1.8 | * | * | * |
| 2-METHYL-1-PENTENE,1-HEXENE | * | 0.9 | * | * | * | * | * | 4.1 |
| 2-METHYL-2-PENTENE | 0.5 | 1.2 | 0.2 | 0.5 | 0.5 | 0.1 | 0.1 | 0.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 6.7 | 4.4 | 1.2 | 1.7 | 1.7 | 1.2 | 1.5 | 1.5 |
| a-PINENE | 1.2 | 3.3 | 0.6 | 1.7 | 2.1 | 2.3 | 1.9 | 2.2 |
| SUM OTHER OLEFINS | 32.4 | 41.0 | 118.3 | 65.3 | 25.1 | 33.4 | 34.3 | 46.0 |
| AROMATICS | | | | | | | | |
| BENZENE | 9.6 | 11.8 | 26.8 | 34.7 | 10.0 | 24.3 | 19.8 | 25.6 |
| TOLUENE | 19.3 | 28.4 | 79.5 | 42.5 | 42.6 | 24.5 | 25.1 | 148.7 |
| ETHYLBENZENE | 3.6 | 12.5 | 15.2 | 10.4 | 4.2 | 10.8 | 6.3 | 5.5 |
| m&p-XYLENE | 12.6 | 43.0 | 5.1 | 7.2 | 13.0 | 5.7 | 7.6 | 6.2 |
| o-XYLENE | 4.4 | 15.1 | 2.5 | 3.1 | 4.5 | 3.0 | 3.5 | 2.4 |
| n-PROPYLBENZENE | 1.1 | 1.1 | 0.5 | 0.5 | 1.5 | 0.3 | 0.2 | 0.3 |
| m-ETHYLTOLUENE | 3.9 | 5.4 | 1.4 | 1.9 | 4.4 | 1.3 | 1.2 | 1.3 |
| p-ETHYLTOLUENE | 2.2 | 2.5 | 1.2 | 1.0 | 3.3 | 1.0 | 0.7 | 0.7 |
| 1,3,5-TRIMETHYLBENZENE | 1.6 | 3.2 | 0.7 | 1.2 | 2.8 | 0.7 | 0.5 | 0.6 |
| o-ETHYLTOLUENE | 2.1 | 2.5 | 0.9 | 0.8 | 3.1 | 0.9 | 0.5 | 0.6 |
| 1,2,4-TRIMETHYLBENZENE | 5.7 | 9.2 | 2.3 | 3.4 | 7.3 | 2.8 | 2.5 | 2.7 |
| n-DECANE | 4.0 | 1.6 | 2.5 | 0.5 | 3.6 | 0.5 | 0.3 | 0.2 |
| 1,4-DIETHYLBENZENE | 1.1 | 2.8 | 2.2 | 0.7 | 1.8 | 0.8 | 0.4 | 0.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.9 | 1.1 | 0.3 | 0.4 | 1.7 | 0.5 | 0.5 | 0.3 |
| SUM OTHER AROMATICS | 35.8 | 47.1 | 22.9 | 28.2 | 24.4 | 12.0 | 12.6 | 6.8 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 8.3 | 17.9 | 7.6 | 8.1 | 9.7 | 10.8 | 6.7 | 6.3 |
| SUM UNKNOWNS | 0.2 | 4.4 | 11.2 | 4.2 | 6.6 | 3.6 | 5.1 | 2.8 |
| SUM PARAFFINS | 270.5 | 283.4 | 571.8 | 444.5 | 291.9 | 377.0 | 367.6 | 522.5 |
| SUM OLEFINS | 74.4 | 111.3 | 196.7 | 802.5 | 75.6 | 411.2 | 459.2 | 616.6 |
| SUM AROMATICS | 108.7 | 188.1 | 164.6 | 137.0 | 128.8 | 89.6 | 82.4 | 203.4 |
| SUM HYDROCARBONS | 462.2 | 605.2 | 952.1 | 1396.5 | 512.8 | 893.8 | 921.2 | 1351.9 |

TABLE A-15c. Hydrocarbon concentration data for CLUTE, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2038<br>84/08/31 | 2072<br>85/08/13 | 2149<br>84/09/07 | 2180<br>84/09/10 | 2198<br>85/08/22 | 2234<br>85/08/26 | 2317<br>85/08/30 | 2351<br>85/09/04 |
| PARAFFINS | | | | | | | | |
| ETHANE | 43.0 | 17.2 | 17.7 | 32.5 | 41.2 | 40.9 | 67.9 | 7.5 |
| PROPANE | 42.0 | 23.5 | 18.4 | 18.3 | 79.7 | 36.4 | 60.0 | 60.4 |
| ISOBUTANE | 16.2 | 6.9 | 9.9 | 5.7 | 17.5 | 12.0 | 26.3 | 3.0 |
| n-BUTANE | 23.5 | 18.7 | 16.8 | 16.4 | 43.5 | 24.4 | 46.4 | 21.2 |
| ISOPENTANE | 24.7 | 25.4 | 25.3 | 6.8 | 52.4 | 29.6 | 49.8 | 7.9 |
| n-PENTANE | 13.9 | 12.2 | 21.6 | 5.4 | 22.7 | 14.1 | 23.9 | 7.5 |
| 2,2-DIMETHYLBUTANE | 1.2 | 1.0 | 0.7 | 0.4 | 2.5 | 1.3 | 2.4 | 0.4 |
| CYCLOPENTANE | 1.5 | 1.1 | 1.2 | 0.4 | 2.7 | 1.5 | 2.9 | 0.6 |
| 2,3-DIMETHYLBUTANE | 2.2 | 2.1 | 1.7 | 0.6 | 4.8 | 2.7 | 4.4 | 0.6 |
| 2-METHYLPENTANE | 10.9 | 8.2 | 8.9 | 4.2 | 16.9 | 10.5 | 16.3 | 2.7 |
| 3-METHYLPENTANE | 6.4 | 5.8 | 6.6 | 5.2 | 12.0 | 8.5 | 11.8 | 2.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 10.7 | 5.8 | 4.8 | 2.5 | 13.9 | 14.2 | 12.5 | 2.5 |
| METHYLCYCLOPENTANE | 5.1 | 3.3 | 2.9 | 1.2 | 9.0 | 5.3 | 8.3 | 1.5 |
| 2,4-DIMETHYLPENTANE | 0.8 | 0.9 | 0.5 | 0.4 | 2.2 | 1.2 | 1.8 | 0.4 |
| CYCLOHEXANE | 3.0 | 4.3 | 1.7 | 90.6 | 9.6 | 4.4 | 5.4 | 83.3 |
| 2-METHYLHEXANE | 4.4 | 5.4 | 2.6 | 1.6 | 12.0 | 7.2 | 10.1 | 8.5 |
| 2,3-DIMETHYLPENTANE | * | * | * | 1.4 | * | * | * | * |
| 3-METHYLHEXANE | 5.3 | 3.6 | 3.3 | * | 7.7 | 4.2 | 5.7 | 4.4 |
| 2,2,4-TRIMETHYLPENTANE | 3.9 | 5.1 | 1.5 | 17.8 | 11.8 | 6.2 | 7.3 | 18.9 |
| n-HEPTANE | 2.9 | 2.0 | 1.8 | 2.6 | 5.4 | 2.9 | 5.2 | 4.1 |
| METHYLCYCLOHEXANE | 3.7 | 1.5 | 1.6 | 0.5 | 3.1 | 2.8 | 6.9 | 1.6 |
| 2,5-DIMETHYLHEXANE | 0.8 | 1.0 | 0.6 | 1.4 | 2.1 | 1.2 | 1.7 | 1.8 |
| 2,4-DIMETHYLHEXANE | 1.0 | 1.0 | 0.7 | 2.6 | 2.5 | 1.3 | 1.7 | 2.8 |
| 2,3,4-TRIMETHYLPENTANE | 0.9 | 2.0 | 0.6 | 13.3 | 4.0 | 2.3 | 2.7 | 16.2 |
| 2-METHYLHEPTANE | 0.9 | 0.7 | 0.6 | 0.5 | 2.8 | 1.9 | 1.6 | 0.9 |
| 3-METHYLHEPTANE | 1.4 | 1.3 | 0.9 | 1.0 | 3.2 | 1.7 | 2.2 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 1.4 | 0.2 | 38.9 | 1.2 | 1.0 | 1.0 | 42.6 |
| n-OCTANE | 1.2 | 1.8 | 1.2 | 4.4 | 2.5 | 1.7 | 2.4 | 13.0 |
| 2,4-DIMETHYLHEPTANE | * | 0.5 | * | 0.6 | 1.8 | * | 1.1 | 1.8 |
| 4-METHYLOCTANE | * | 0.7 | 0.6 | * | 1.8 | 0.9 | 1.2 | 0.2 |
| 3-METHYLOCTANE | 0.6 | 0.9 | 0.5 | * | 1.4 | 0.7 | 1.1 | 3.9 |
| n-NONANE | 1.2 | 0.7 | 0.8 | 0.3 | 1.4 | 0.9 | 1.4 | 1.1 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 0.7 | 1.2 | 1.7 | 0.7 | 1.4 | 0.5 | 1.9 | 0.8 |
| SUM OTHER PARAFFINS | 18.1 | 17.5 | 14.7 | 64.9 | 26.2 | 16.3 | 25.3 | 67.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 64.8 | 46.8 | 6.1 | 453.6 | 135.2 | 175.7 | 19.1 | 684.1 |
| PROPENE | 28.5 | 19.4 | 2.3 | 65.0 | 454.9 | 30.9 | 8.1 | 53.8 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.4 | 4.0 | 1.9 | 2.4 | 5.6 | 4.3 | 5.7 | * |
| 1,3-BUTADIENE | 0.6 | 1.9 | 0.3 | 0.7 | 1.9 | 1.2 | 1.8 | 0.4 |
| t-2-BUTENE | 0.6 | 1.4 | 0.5 | * | 2.5 | 1.4 | 1.7 | 0.5 |
| c-2-BUTENE | 0.4 | 0.9 | 0.3 | 0.2 | 1.7 | 0.9 | 1.0 | 0.3 |
| 1-PENTENE | 0.8 | 1.0 | 0.9 | 0.7 | 2.2 | 1.0 | 1.2 | * |
| 2-METHYL-1-BUTENE | 1.2 | 1.5 | 0.8 | 1.0 | 2.8 | 1.8 | 1.7 | * |
| ISOPRENE | 0.7 | 0.7 | 0.4 | 0.3 | 1.9 | 2.0 | 1.4 | * |
| t-2-PENTENE | 1.3 | 2.1 | 1.0 | 0.6 | 3.8 | 2.1 | 1.9 | * |
| c-2-PENTENE | 0.0 | 3.7 | * | * | 1.8 | 0.5 | 2.2 | 0.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.0 | 0.2 | * | * | 0.5 | 0.3 | * | * |
| 2-METHYL-2-PENTENE | 0.5 | 0.7 | 0.2 | 0.2 | 1.2 | 0.7 | 0.6 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.5 | 2.1 | 1.3 | 0.5 | 2.3 | 1.3 | 1.3 | 2.2 |
| a-PINENE | 1.6 | 3.2 | 0.5 | * | 0.6 | 0.9 | 0.9 | * |
| SUM OTHER OLEFINS | 24.1 | 22.6 | 28.9 | 52.7 | 20.7 | 11.7 | 15.9 | 67.6 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 8.9 | 6.7 | 3.8 | 26.9 | 16.3 | 9.3 | 12.6 | 31.6 |
| TOLUENE | 14.3 | 18.3 | 17.7 | 36.7 | 35.8 | 19.9 | 26.1 | 40.9 |
| ETHYLBENZENE | 2.5 | 3.8 | 2.1 | 13.8 | 6.2 | 4.6 | 6.2 | 12.6 |
| m&p-XYLENE | 7.9 | 9.8 | 6.3 | 3.7 | 18.1 | 12.3 | 14.1 | 4.1 |
| o-XYLENE | 3.0 | 5.2 | 2.2 | 1.5 | 7.6 | 5.4 | 6.1 | 3.5 |
| n-PROPYLBENZENE | 0.9 | 0.8 | 0.7 | 0.2 | 1.4 | 0.7 | 1.0 | 0.4 |
| m-ETHYLTOLUENE | 3.2 | 3.1 | 2.1 | 1.3 | 4.4 | 2.9 | 3.7 | 1.1 |
| p-ETHYLTOLUENE | 1.4 | 1.4 | 1.5 | 0.8 | 1.3 | 0.8 | 1.9 | 0.6 |
| 1,3,5-TRIMETHYLBENZENE | 1.2 | 1.7 | 0.8 | 0.5 | 2.5 | 1.6 | 2.1 | 0.4 |
| o-ETHYLTOLUENE | 1.5 | 1.4 | 1.3 | 0.8 | 3.4 | 1.9 | 1.8 | 0.5 |
| 1,2,4-TRIMETHYLBENZENE | 4.2 | 5.0 | 3.3 | 2.1 | 15.0 | 11.9 | 6.8 | * |
| n-DECANE | 3.5 | 0.8 | 3.4 | 2.1 | 1.6 | 1.4 | 1.2 | 0.4 |
| 1,4-DIETHYLBENZENE | 1.2 | 1.2 | 1.2 | 0.5 | 1.9 | 1.3 | 1.3 | * |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.5 | 2.2 | 1.6 | 0.9 | 2.3 | * | * | 0.2 |
| SUM OTHER AROMATICS | 14.3 | 17.8 | 24.6 | 23.2 | 29.5 | 14.7 | 13.7 | 15.4 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 5.3 | 8.0 | 3.9 | 2.0 | 16.4 | 10.8 | 14.7 | 3.2 |
| SUM UNKNOWNS | 5.8 | 3.2 | 2.1 | 3.4 | 9.1 | 2.0 | 2.3 | 7.5 |
| SUM PARAFFINS | 254.1 | 186.0 | 173.9 | 344.1 | 424.6 | 262.1 | 422.0 | 396.2 |
| SUM OLEFINS | 130.9 | 112.7 | 46.2 | 578.4 | 640.4 | 237.3 | 65.1 | 809.8 |
| SUM AROMATICS | 69.1 | 79.8 | 73.4 | 115.6 | 148.0 | 89.2 | 99.2 | 112.3 |
| SUM HYDROCARBONS | 465.3 | 390.4 | 305.0 | 1043.7 | 1238.6 | 601.5 | 603.5 | 1329.2 |

TABLE A-15d. Hydrocarbon concentration data for CLUTE, TX

| Compound | ID Number and Sample Date<br>2392<br>84/09/21 | <br>2445<br>84/09/26 | <br>2560<br>85/09/19 | <br>2600<br>85/09/24 |
|---|---|---|---|---|
| PARAFFINS | | | | |
| ETHANE | 22.6 | 47.3 | 9.0 | 34.1 |
| PROPANE | 21.1 | 47.3 | 6.1 | 34.5 |
| ISOBUTANE | 13.0 | 23.9 | 2.1 | 18.8 |
| n-BUTANE | 14.2 | 47.1 | 4.5 | 17.7 |
| ISOPENTANE | 13.6 | 35.8 | 2.6 | 28.5 |
| n-PENTANE | 6.9 | 19.0 | 1.0 | 6.1 |
| 2,2-DIMETHYLBUTANE | 0.4 | 1.6 | * | 0.1 |
| CYCLOPENTANE | 0.6 | 2.0 | * | 4.2 |
| 2,3-DIMETHYLBUTANE | 1.0 | 2.9 | 0.2 | * |
| 2-METHYLPENTANE | 5.2 | 12.8 | 1.3 | 1.9 |
| 3-METHYLPENTANE | 4.0 | 7.0 | 1.7 | 1.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.6 | 9.9 | 1.3 | 3.0 |
| METHYLCYCLOPENTANE | 2.4 | 6.0 | 0.5 | * |
| 2,4-DIMETHYLPENTANE | 0.4 | 1.4 | 0.8 | * |
| CYCLOHEXANE | 1.3 | 3.9 | * | * |
| 2-METHYLHEXANE | 0.8 | 4.8 | 3.7 | * |
| 2,3-DIMETHYLPENTANE | * | * | * | 2.3 |
| 3-METHYLHEXANE | 3.5 | 4.3 | 0.7 | 0.5 |
| 2,2,4-TRIMETHYLPENTANE | 1.7 | 5.1 | 0.5 | 0.4 |
| n-HEPTANE | 1.7 | 3.7 | 0.5 | 0.6 |
| METHYLCYCLOHEXANE | 1.7 | 4.7 | 0.3 | 0.9 |
| 2,5-DIMETHYLHEXANE | 0.6 | 1.0 | * | * |
| 2,4-DIMETHYLHEXANE | 0.8 | 1.1 | 0.0 | * |
| 2,3,4-TRIMETHYLPENTANE | 0.4 | 1.2 | 0.2 | 0.1 |
| 2-METHYLHEPTANE | 1.1 | 0.9 | * | 0.1 |
| 3-METHYLHEPTANE | 0.6 | 1.5 | 0.2 | 0.2 |
| 2,2,5-TRIMETHYLHEXANE | 0.1 | 0.5 | * | 0.0 |
| n-OCTANE | 0.9 | 1.4 | 0.5 | 0.4 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.3 | 0.3 |
| 4-METHYLOCTANE | 5.4 | 1.2 | * | * |
| 3-METHYLOCTANE | 0.4 | 0.8 | * | * |
| n-NONANE | 1.6 | 1.6 | 0.1 | 0.2 |
| 4-METHYLNONANE | 0.5 | * | * | * |
| n-DECANE | 1.8 | 1.8 | 0.2 | 0.2 |
| SUM OTHER PARAFFINS | 21.1 | 33.7 | 7.0 | 11.1 |

|  |  |  |  |  |
|---|---|---|---|---|
| OLEFINS |  |  |  |  |
| ETHYLENE | 68.5 | 17.0 | 2.6 | 36.1 |
| PROPENE | 14.5 | 9.4 | 0.4 | 11.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.5 | 0.3 | 1.1 | * |
| 1,3-BUTADIENE | 0.9 | 1.1 | 0.1 | 0.2 |
| t-2-BUTENE | 0.5 | 1.3 | 0.1 | 0.6 |
| c-2-BUTENE | 0.3 | 0.9 | * | 0.3 |
| 1-PENTENE | 0.4 | 1.1 | * | 0.2 |
| 2-METHYL-1-BUTENE | 0.5 | 1.3 | * | 0.2 |
| ISOPRENE | 0.2 | 0.9 | * | * |
| t-2-PENTENE | 0.5 | 1.3 | * | 0.2 |
| c-2-PENTENE | 0.4 | 1.6 | * | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | * | * |
| 2-METHYL-2-PENTENE | 0.1 | 0.3 | * | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.8 | 1.1 | * | 0.7 |
| a-PINENE | 1.5 | 3.9 | 0.2 | * |
| SUM OTHER OLEFINS | 17.6 | 18.4 | 6.9 | 2.2 |
| AROMATICS |  |  |  |  |
| BENZENE | 5.5 | 8.6 | 1.2 | 2.0 |
| TOLUENE | 9.2 | 18.7 | 14.6 | 2.7 |
| ETHYLBENZENE | 1.8 | 6.5 | 0.7 | 1.1 |
| m&p-XYLENE | 4.5 | 21.2 | 1.8 | 1.3 |
| o-XYLENE | 1.8 | 6.7 | 3.6 | * |
| n-PROPYLBENZENE | 0.6 | * | 0.0 | * |
| m-ETHYLTOLUENE | 1.9 | 3.0 | 0.4 | 0.1 |
| p-ETHYLTOLUENE | 1.0 | 1.5 | 0.2 | 0.0 |
| 1,3,5-TRIMETHYLBENZENE | 0.6 | 1.5 | 0.2 | * |
| o-ETHYLTOLUENE | 1.6 | 1.4 | 0.1 | 0.2 |
| 1,2,4-TRIMETHYLBENZENE | 2.5 | 4.7 | 1.0 | 3.7 |
| n-DECANE | 3.1 | 1.3 | 0.1 | * |
| 1,4-DIETHYLBENZENE | 0.4 | 1.4 | 0.7 | 0.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.5 | 1.3 | 0.2 | 0.2 |
| SUM OTHER AROMATICS | 29.9 | 50.0 | 35.4 | 1.6 |
| SUMMARY |  |  |  |  |
| ACETYLENE | 2.2 | 7.9 | 1.2 | 6.0 |
| SUM UNKNOWNS | 3.0 | 2.7 | 2.8 | 3.5 |
| SUM PARAFFINS | 157.3 | 338.6 | 46.3 | 168.4 |
| SUM OLEFINS | 109.9 | 60.5 | 11.7 | 52.0 |
| SUM AROMATICS | 66.5 | 128.3 | 61.0 | 13.7 |
| SUM HYDROCARBONS | 339.1 | 539.0 | 127.0 | 243.7 |

## TABLE A-16a. Hydrocarbon concentration data for CINCINNATTI, OH

| Compound | ID Number and Sample Date | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1260<br>84/08/16 | 1410<br>84/07/24 | 1650<br>84/08/08 | 1826<br>84/08/17 | 2161<br>84/09/07 | 2174<br>84/09/10 | 2461<br>84/09/27 |
| **PARAFFINS** | | | | | | | |
| ETHANE | 13.4 | 26.3 | 15.8 | 18.4 | 20.2 | 11.9 | 11.3 |
| PROPANE | 12.8 | 21.4 | 13.0 | 26.7 | 18.1 | 11.7 | 18.3 |
| ISOBUTANE | 11.8 | 30.8 | 8.1 | 17.8 | 19.2 | 9.4 | 37.7 |
| n-BUTANE | 40.4 | 113.0 | 28.6 | 65.8 | 19.5 | 32.2 | 22.6 |
| ISOPENTANE | 42.4 | 92.2 | 38.5 | 77.2 | 17.4 | 33.8 | 95.3 |
| n-PENTANE | 20.8 | 39.1 | 23.1 | 38.4 | 11.0 | 16.6 | 276.7 |
| 2,2-DIMETHYLBUTANE | 1.6 | 2.7 | 1.9 | 3.8 | * | 1.4 | 2.2 |
| CYCLOPENTANE | 1.8 | 3.5 | 2.0 | 3.6 | 0.8 | 1.4 | 11.4 |
| 2,3-DIMETHYLBUTANE | 3.5 | 5.6 | 4.8 | 6.9 | 1.7 | 2.9 | 3.4 |
| 2-METHYLPENTANE | 14.1 | 22.8 | 16.3 | 28.0 | 9.0 | 13.0 | 15.8 |
| 3-METHYLPENTANE | 12.1 | 17.0 | 17.7 | 19.8 | 8.4 | 8.9 | 14.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.8 | 14.6 | 12.0 | 20.4 | 9.8 | 9.0 | 18.1 |
| METHYLCYCLOPENTANE | 5.7 | 9.2 | 7.7 | 12.1 | 5.2 | 5.4 | 13.2 |
| 2,4-DIMETHYLPENTANE | 2.2 | 2.9 | 2.5 | 3.6 | 0.7 | 1.4 | 2.1 |
| CYCLOHEXANE | 1.4 | 2.2 | 3.3 | 3.1 | 16.0 | 1.3 | 13.6 |
| 2-METHYLHEXANE | 3.5 | 6.7 | 8.4 | 13.7 | 5.7 | 5.9 | 6.4 |
| 2,3-DIMETHYLPENTANE | 3.6 | 4.4 | * | * | * | * | 4.7 |
| 3-METHYLHEXANE | 19.2 | 11.6 | 9.4 | 10.2 | 9.6 | 5.5 | 13.1 |
| 2,2,4-TRIMETHYLPENTANE | 5.5 | 8.4 | 7.2 | 10.6 | 3.2 | 5.3 | 10.3 |
| n-HEPTANE | 3.7 | 4.6 | 6.0 | 7.9 | 3.9 | 3.5 | 9.4 |
| METHYLCYCLOHEXANE | 1.9 | 3.0 | 2.9 | 4.8 | 2.0 | 2.1 | 13.4 |
| 2,5-DIMETHYLHEXANE | 1.4 | 1.8 | 1.4 | 2.3 | 0.8 | 1.1 | 2.0 |
| 2,4-DIMETHYLHEXANE | 2.8 | 2.4 | 1.9 | 2.7 | 1.2 | 1.4 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 1.9 | 2.3 | 2.0 | 3.2 | 0.8 | 3.2 | 1.8 |
| 2-METHYLHEPTANE | 2.2 | 2.4 | 3.1 | 3.7 | 1.3 | 1.9 | 3.7 |
| 3-METHYLHEPTANE | 2.0 | 2.5 | 2.5 | 4.2 | 1.2 | 2.0 | 4.6 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.8 | 0.9 | 1.2 | 0.6 | 0.8 | 1.4 |
| n-OCTANE | 1.3 | 2.4 | 4.3 | 3.8 | 1.5 | 2.1 | 8.7 |
| 2,4-DIMETHYLHEPTANE | * | 0.1 | * | 0.3 | * | 0.1 | 1.1 |
| 4-METHYLOCTANE | * | 3.0 | 2.9 | 3.9 | 4.1 | 1.9 | 9.5 |
| 3-METHYLOCTANE | 1.0 | 1.1 | 1.4 | 1.8 | 2.8 | 1.2 | 5.3 |
| n-NONANE | 1.5 | 2.2 | 4.3 | 4.5 | 22.9 | 4.4 | 23.4 |
| 4-METHYLNONANE | * | * | * | * | 14.8 | 1.4 | 5.4 |
| n-DECANE | 2.8 | 4.4 | 9.9 | 7.7 | 137.7 | 12.7 | 47.8 |
| SUM OTHER PARAFFINS | 76.2 | 49.2 | 61.6 | 52.9 | 455.1 | 47.5 | 309.7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | |
| ETHYLENE | 18.1 | 20.0 | 16.7 | 39.4 | 13.3 | 16.7 | 10.9 |
| PROPENE | 5.8 | 7.1 | 5.7 | 13.0 | 5.5 | 5.2 | 4.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 6.1 | 10.1 | 5.9 | 11.6 | 5.2 | 5.2 | 7.2 |
| 1,3-BUTADIENE | 1.0 | 9.2 | 1.4 | 3.1 | 1.0 | 0.6 | 1.6 |
| t-2-BUTENE | 2.5 | 6.4 | 2.2 | 5.6 | 1.0 | 1.7 | 1.3 |
| c-2-BUTENE | 3.7 | 5.2 | 1.6 | 3.9 | 1.0 | 1.6 | 1.0 |
| 1-PENTENE | 1.4 | 3.2 | 1.6 | 3.3 | 0.7 | 1.3 | 0.9 |
| 2-METHYL-1-BUTENE | 2.0 | 5.2 | 2.6 | 4.6 | 1.2 | 2.8 | 1.6 |
| ISOPRENE | 1.1 | 1.4 | 0.7 | 2.6 | 19.2 | 1.3 | 12.2 |
| t-2-PENTENE | 2.5 | 5.9 | 2.3 | 5.1 | * | 2.1 | * |
| c-2-PENTENE | 4.1 | 7.6 | 2.0 | 5.2 | 0.9 | 3.0 | 1.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.3 | 0.8 | 1.9 | 1.4 | * | 0.1 | 2.5 |
| 2-METHYL-2-PENTENE | 1.0 | 1.4 | 1.1 | 2.0 | 0.7 | 0.9 | 1.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 1.8 | 2.8 | 3.9 | 10.1 | 1.4 | 52.8 |
| a-PINENE | 1.0 | 0.9 | 1.0 | 1.5 | 7.3 | 2.2 | 9.9 |
| SUM OTHER OLEFINS | 74.3 | 59.5 | 56.6 | 60.0 | 95.3 | 40.2 | 509.1 |
| AROMATICS | | | | | | | |
| BENZENE | 10.3 | 14.6 | 11.6 | 22.5 | 6.4 | 9.4 | 8.8 |
| TOLUENE | 24.6 | 32.6 | 39.9 | 50.5 | 28.7 | 33.0 | 171.5 |
| ETHYLBENZENE | 5.8 | 5.8 | 5.3 | 9.7 | 7.2 | 7.5 | 23.8 |
| m&p-XYLENE | 18.3 | 18.9 | 17.2 | 32.6 | 23.9 | 25.4 | 43.7 |
| o-XYLENE | 6.6 | 6.4 | 6.3 | 11.2 | 6.9 | 7.4 | 16.2 |
| n-PROPYLBENZENE | 1.8 | 1.9 | 3.1 | 3.2 | 5.2 | 1.7 | 8.1 |
| m-ETHYLTOLUENE | 5.8 | 5.9 | 5.3 | 9.2 | 8.2 | 5.0 | 16.4 |
| p-ETHYLTOLUENE | 4.3 | 3.5 | 4.3 | 5.2 | 17.8 | 3.6 | 13.1 |
| 1,3,5-TRIMETHYLBENZENE | 2.8 | 3.1 | 4.4 | 5.9 | 8.2 | 2.9 | 11.1 |
| o-ETHYLTOLUENE | 3.0 | 3.0 | 5.3 | 4.8 | 18.1 | 3.5 | 53.7 |
| 1,2,4-TRIMETHYLBENZENE | 8.5 | 9.2 | 10.3 | 15.7 | 33.9 | 10.4 | 27.8 |
| n-DECANE | 4.6 | 4.7 | 4.0 | 3.9 | 32.4 | 4.5 | 12.4 |
| 1,4-DIETHYLBENZENE | 2.9 | 3.1 | 2.6 | 4.7 | 27.3 | 2.8 | 10.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.7 | 4.2 | 7.2 | 4.4 | 148.8 | 11.2 | 35.9 |
| SUM OTHER AROMATICS | 61.2 | 55.7 | 66.9 | 64.4 | 844.6 | 87.6 | 315.4 |
| SUMMARY | | | | | | | |
| ACETYLENE | 11.9 | 14.4 | 13.3 | 28.1 | 5.7 | 12.6 | 7.5 |
| SUM UNKNOWNS | 10.0 | 5.4 | 0.5 | 1.6 | 4.9 | 4.8 | 9.4 |
| SUM PARAFFINS | 325.2 | 518.1 | 327.0 | 486.3 | 827.4 | 265.7 | 1041.8 |
| SUM OLEFINS | 126.5 | 146.4 | 106.8 | 166.8 | 163.0 | 86.9 | 619.0 |
| SUM AROMATICS | 164.7 | 173.2 | 194.2 | 248.4 | 1218.2 | 216.7 | 769.0 |
| SUM HYDROCARBONS | 646.4 | 858.0 | 642.3 | 932.1 | 2227.1 | 587.9 | 2451.1 |

TABLE A-17a. Hydrocarbon concentration data for DENVER 1, CO

| Compound | ID Number and Sample Date<br>1443<br>86/06/27 | 1512<br>86/07/02 | 1643<br>86/07/10 | 1682RA0<br>86/07/14 | 1840<br>86/07/22 | 2008<br>86/07/31 | 2156<br>86/08/07 | 2307<br>86/08/15 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 23.2 | 61.8 | 14.1 | 30.7 | 63.9 | 31.6 | 37.7 | 64.1 |
| PROPANE | 27.0 | 49.4 | 15.2 | 34.8 | 56.7 | 28.8 | 46.6 | 42.7 |
| ISOBUTANE | 20.6 | 20.7 | 8.4 | 24.5 | 52.2 | 7.7 | 22.6 | 24.2 |
| n-BUTANE | 43.7 | 48.3 | 16.9 | 50.6 | 98.4 | 17.1 | 50.5 | 56.7 |
| ISOPENTANE | 61.0 | 72.9 | 24.9 | 68.7 | 121.1 | 8.0 | 46.4 | 86.3 |
| n-PENTANE | 34.6 | 49.2 | 19.0 | 43.1 | 59.7 | 4.4 | 25.5 | 58.0 |
| 2,2-DIMETHYLBUTANE | 1.1 | 1.9 | 0.5 | 1.2 | 1.8 | 0.2 | 0.7 | 2.2 |
| CYCLOPENTANE | 2.3 | 3.7 | 1.2 | 2.8 | 3.9 | * | 1.6 | 4.5 |
| 2,3-DIMETHYLBUTANE | 3.8 | 6.5 | 1.7 | 4.6 | 7.4 | 0.7 | 2.8 | 8.0 |
| 2-METHYLPENTANE | 16.4 | 26.7 | 8.1 | 20.5 | 30.4 | 4.1 | 11.0 | 33.6 |
| 3-METHYLPENTANE | 11.6 | 16.8 | 6.8 | 14.5 | 18.3 | 2.5 | 8.1 | 21.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.8 | 25.0 | 8.6 | 17.8 | 22.5 | 7.2 | 10.9 | 30.9 |
| METHYLCYCLOPENTANE | 7.3 | 13.2 | 4.2 | 9.7 | 13.4 | 2.6 | 5.2 | 16.7 |
| 2,4-DIMETHYLPENTANE | 2.3 | 4.5 | 1.2 | 2.8 | 3.9 | 0.9 | 1.6 | 5.9 |
| CYCLOHEXANE | 3.5 | 6.5 | 2.6 | 4.9 | 6.4 | * | 2.5 | 8.9 |
| 2-METHYLHEXANE | 9.6 | 20.7 | 5.9 | 12.6 | 16.0 | * | 5.1 | 26.8 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | 2.6 | * | * |
| 3-METHYLHEXANE | 7.0 | 13.2 | 4.5 | 8.3 | 10.7 | 1.8 | 3.6 | 18.1 |
| 2,2,4-TRIMETHYLPENTANE | 6.8 | 13.8 | 4.0 | 8.1 | 10.0 | 1.4 | 3.5 | 16.7 |
| n-HEPTANE | 7.6 | 16.2 | 5.1 | 8.1 | 10.7 | 2.5 | 4.5 | 18.3 |
| METHYLCYCLOHEXANE | 4.9 | 10.0 | 3.2 | 6.5 | 7.4 | 2.0 | 3.1 | 12.0 |
| 2,5-DIMETHYLHEXANE | 1.8 | 3.4 | 0.7 | 2.1 | 2.5 | 0.3 | 0.6 | 4.1 |
| 2,4-DIMETHYLHEXANE | 1.8 | 3.6 | 1.1 | 2.2 | 2.6 | 0.4 | 0.8 | 4.4 |
| 2,3,4-TRIMETHYLPENTANE | 2.5 | 5.4 | 1.6 | 3.0 | 3.4 | 0.4 | 1.0 | 6.6 |
| 2-METHYLHEPTANE | 3.7 | 6.4 | 1.0 | 4.9 | 4.1 | 1.0 | 1.8 | 7.4 |
| 3-METHYLHEPTANE | 3.2 | 6.9 | 1.8 | 3.9 | 4.5 | 0.7 | 1.5 | 8.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 2.0 | 0.6 | 1.3 | 1.0 | 1.3 | 0.7 | 2.4 |
| n-OCTANE | 4.9 | 7.2 | 2.2 | 4.0 | 4.2 | 1.1 | 1.5 | 10.1 |
| 2,4-DIMETHYLHEPTANE | 1.0 | 1.0 | 3.3 | 1.6 | 1.0 | 0.5 | 0.9 | 2.1 |
| 4-METHYLOCTANE | 2.9 | 3.9 | 1.2 | 2.6 | 3.2 | 0.8 | 1.2 | 5.4 |
| 3-METHYLOCTANE | 2.0 | 3.3 | 1.3 | 1.9 | 2.3 | 0.7 | 1.2 | 4.0 |
| n-NONANE | 3.3 | 5.1 | 1.9 | 2.3 | 3.0 | 1.1 | 0.9 | 3.9 |
| 4-METHYLNONANE | * | * | * | * | * | 0.6 | * | * |
| n-DECANE | 3.7 | 7.3 | 3.1 | 2.3 | 4.5 | 2.1 | 1.1 | 5.2 |
| SUM OTHER PARAFFINS | 26.6 | 53.3 | 30.0 | 29.7 | 33.9 | 22.3 | 22.8 | 58.9 |

OLEFINS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ETHYLENE | 31.5 | 44.2 | 13.1 | 24.2 | 25.0 | 6.4 | 9.4 | 53.4 |
| PROPENE | 6.8 | 12.9 | 4.9 | 7.6 | 6.9 | 0.9 | 2.8 | 18.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 7.7 | 10.6 | 3.7 | 10.7 | 7.5 | 0.9 | 4.6 | 12.1 |
| 1,3-BUTADIENE | 1.0 | 2.5 | 0.9 | 0.7 | 0.4 | * | 0.2 | 2.7 |
| t-2-BUTENE | 3.4 | 4.0 | 1.1 | 5.6 | 3.8 | * | 2.4 | 4.7 |
| c-2-BUTENE | 2.9 | 3.0 | 0.7 | 5.1 | 4.6 | * | 2.1 | 4.0 |
| 1-PENTENE | 1.8 | 2.8 | 1.2 | 3.2 | 5.2 | * | 1.2 | 3.4 |
| 2-METHYL-1-BUTENE | 3.0 | 4.5 | 1.1 | 4.7 | 5.8 | * | 2.2 | 8.0 |
| ISOPRENE | 1.3 | 2.2 | 2.4 | 1.7 | 1.0 | 3.8 | 0.5 | 2.4 |
| t-2-PENTENE | 2.6 | 4.5 | 1.1 | 5.4 | 4.1 | * | 2.0 | 6.2 |
| c-2-PENTENE | 2.7 | 5.3 | 2.6 | 6.6 | 2.9 | * | 2.3 | 7.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.5 | 2.1 | 0.2 | 0.8 | 0.9 | * | 0.2 | 2.5 |
| 2-METHYL-2-PENTENE | 0.5 | 1.5 | 0.3 | 1.7 | 0.8 | * | 0.1 | 2.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.4 | 10.0 | 2.1 | 1.6 | 3.7 | * | 0.5 | 17.8 |
| a-PINENE | 0.4 | 1.1 | 0.2 | 0.0 | 1.8 | * | 0.5 | 1.1 |
| SUM OTHER OLEFINS | 9.9 | 27.9 | 7.6 | 21.7 | 16.5 | 4.2 | 8.0 | 36.9 |

AROMATICS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BENZENE | 12.6 | 22.6 | 6.5 | 14.4 | 18.4 | 2.7 | 6.2 | 30.2 |
| TOLUENE | 44.4 | 68.8 | 23.7 | 41.3 | 47.0 | 7.2 | 15.1 | 88.1 |
| ETHYLBENZENE | 6.7 | 11.8 | 3.5 | 6.8 | 7.7 | 1.2 | 2.6 | 14.5 |
| m&p-XYLENE | 21.8 | 41.4 | 12.6 | 24.4 | 26.4 | 5.6 | 9.6 | 51.1 |
| o-XYLENE | 9.1 | 15.0 | 5.9 | 9.3 | 10.8 | 3.3 | 4.5 | 19.5 |
| n-PROPYLBENZENE | 1.3 | 2.7 | 0.6 | 1.4 | 1.7 | * | 0.5 | 3.2 |
| m-ETHYLTOLUENE | 4.7 | 9.3 | 2.8 | 5.4 | 6.1 | 1.4 | 2.2 | 12.2 |
| p-ETHYLTOLUENE | 2.6 | 5.0 | 1.7 | 3.0 | 3.4 | 0.8 | 1.1 | 6.4 |
| 1,3,5-TRIMETHYLBENZENE | 2.9 | 6.1 | 2.2 | 3.6 | 4.0 | 1.5 | 1.7 | 5.9 |
| o-ETHYLTOLUENE | 2.4 | 4.9 | 1.8 | 2.7 | 3.1 | 1.0 | 1.0 | 5.9 |
| 1,2,4-TRIMETHYLBENZENE | 8.5 | 20.4 | 7.1 | 12.7 | 16.0 | 5.1 | 5.2 | 25.2 |
| n-DECANE | 1.8 | 4.0 | 1.3 | 2.2 | 2.7 | 0.5 | 0.8 | 5.0 |
| 1,4-DIETHYLBENZENE | 2.2 | 3.8 | 1.7 | 3.0 | 3.3 | 1.0 | 1.3 | 6.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.4 | 5.8 | * | 1.7 | 2.8 | 1.7 | 0.7 | 4.7 |
| SUM OTHER AROMATICS | 29.4 | 56.8 | 17.1 | 38.3 | 46.3 | 8.4 | 10.1 | 65.4 |

SUMMARY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ACETYLENE | 10.4 | 28.2 | 12.7 | 21.0 | 21.2 | 3.2 | 8.6 | 49.4 |
| SUM UNKNOWNS | 5.5 | 2.6 | 9.6 | 4.4 | 1.6 | 3.7 | 1.8 | 3.6 |
| SUM PARAFFINS | 367.7 | 591.1 | 207.5 | 438.3 | 686.5 | 160.7 | 331.0 | 680.9 |
| SUM OLEFINS | 80.1 | 139.7 | 43.8 | 102.0 | 91.3 | 16.4 | 39.7 | 183.8 |
| SUM AROMATICS | 153.5 | 279.1 | 89.2 | 170.9 | 200.4 | 42.0 | 63.3 | 344.3 |
| SUM HYDROCARBONS | 617.4 | 1040.9 | 364.2 | 736.8 | 1001.3 | 226.5 | 445.0 | 1262.1 |

## TABLE A-17b. Hydrocarbon concentration data for DENVER 1, CO

| Compound | ID Number and Sample Date<br>2386<br>86/08/20 | <br>2514<br>86/08/27 | <br>2585<br>86/09/02 | <br>2676<br>86/09/08 | <br>2864<br>86/09/19 |
|---|---|---|---|---|---|
| **PARAFFINS** | | | | | |
| ETHANE | 40.2 | 71.6 | 58.8 | 21.3 | 87.9 |
| PROPANE | 31.9 | 53.9 | 37.1 | 16.1 | 86.5 |
| ISOBUTANE | 15.4 | 42.8 | 25.3 | 6.9 | 58.5 |
| n-BUTANE | 35.4 | 95.1 | 58.2 | 17.4 | 132.9 |
| ISOPENTANE | 46.8 | 151.1 | 82.8 | 26.2 | 135.9 |
| n-PENTANE | 30.7 | 92.0 | 57.3 | 21.5 | 92.1 |
| 2,2-DIMETHYLBUTANE | 0.9 | 3.4 | 2.1 | 0.6 | 3.2 |
| CYCLOPENTANE | 2.2 | 7.1 | 4.1 | 1.4 | 6.5 |
| 2,3-DIMETHYLBUTANE | 4.0 | 12.4 | 7.6 | 2.4 | 10.7 |
| 2-METHYLPENTANE | 17.1 | 53.7 | 30.9 | 10.2 | 44.6 |
| 3-METHYLPENTANE | 11.7 | 34.9 | 20.7 | 6.4 | 29.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 17.0 | 47.4 | 28.2 | 9.6 | 43.6 |
| METHYLCYCLOPENTANE | 9.0 | 27.0 | 15.9 | 5.1 | 22.6 |
| 2,4-DIMETHYLPENTANE | 3.0 | 8.3 | 6.5 | 1.9 | 7.9 |
| CYCLOHEXANE | 5.0 | 14.9 | 9.2 | 2.9 | 13.3 |
| 2-METHYLHEXANE | 12.2 | 37.7 | 27.7 | 7.6 | 35.6 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * |
| 3-METHYLHEXANE | 7.6 | 25.1 | 18.0 | 5.0 | 25.1 |
| 2,2,4-TRIMETHYLPENTANE | 7.7 | 18.4 | 17.8 | 5.4 | 18.8 |
| n-HEPTANE | 7.4 | 25.5 | 19.2 | 6.5 | 25.9 |
| METHYLCYCLOHEXANE | 5.9 | 16.8 | 11.0 | 3.6 | 13.6 |
| 2,5-DIMETHYLHEXANE | 2.1 | 5.6 | 4.2 | 0.6 | 4.7 |
| 2,4-DIMETHYLHEXANE | 2.1 | 5.9 | 4.6 | 1.4 | 5.0 |
| 2,3,4-TRIMETHYLPENTANE | 2.9 | 7.8 | 6.8 | 1.8 | 7.4 |
| 2-METHYLHEPTANE | 4.3 | 10.9 | 6.4 | 2.9 | 8.6 |
| 3-METHYLHEPTANE | 3.6 | 13.0 | 7.6 | 2.5 | 9.6 |
| 2,2,5-TRIMETHYLHEXANE | 1.4 | 3.4 | 2.7 | 1.0 | 3.3 |
| n-OCTANE | 5.4 | 11.0 | 7.3 | 2.8 | 9.3 |
| 2,4-DIMETHYLHEPTANE | 1.9 | 2.0 | 2.4 | 0.9 | 1.7 |
| 4-METHYLOCTANE | 3.0 | 7.7 | 5.5 | 2.2 | 4.7 |
| 3-METHYLOCTANE | 1.9 | 5.5 | 3.6 | 1.4 | 4.1 |
| n-NONANE | 2.3 | 5.6 | 3.6 | 1.2 | 5.0 |
| 4-METHYLNONANE | * | * | * | * | * |
| n-DECANE | 3.3 | 6.8 | 3.8 | 1.9 | 5.8 |
| SUM OTHER PARAFFINS | 25.1 | 84.9 | 47.7 | 14.9 | 70.5 |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |
| ETHYLENE | 25.9 | 58.1 | 45.9 | 21.5 | 59.7 |
| PROPENE | 8.4 | 17.2 | 15.0 | 6.7 | 17.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 6.6 | 25.0 | 11.6 | 5.3 | 16.1 |
| 1,3-BUTADIENE | 0.6 | 2.1 | 1.5 | 1.4 | 3.8 |
| t-2-BUTENE | 1.9 | 17.1 | 4.2 | 1.8 | 10.5 |
| c-2-BUTENE | 1.9 | 15.8 | 4.3 | 1.4 | 7.6 |
| 1-PENTENE | 1.8 | 9.0 | 3.6 | 1.2 | 3.6 |
| 2-METHYL-1-BUTENE | 3.0 | 13.3 | 5.5 | 2.0 | 8.5 |
| ISOPRENE | 2.2 | 2.7 | 2.1 | 0.7 | 3.5 |
| t-2-PENTENE | 3.0 | 16.7 | 6.2 | 2.3 | 9.6 |
| c-2-PENTENE | 4.2 | 19.9 | 8.3 | 3.0 | 13.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.3 | 6.8 | 2.5 | 0.5 | 2.1 |
| 2-METHYL-2-PENTENE | 1.4 | 5.5 | 2.8 | 0.9 | 3.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 8.6 | 5.3 | 5.4 | 1.4 | 6.2 |
| a-PINENE | 1.7 | 2.7 | 2.6 | 0.9 | 2.3 |
| SUM OTHER OLEFINS | 14.9 | 64.6 | 36.6 | 9.1 | 49.2 |
| AROMATICS |  |  |  |  |  |
| BENZENE | 13.7 | 39.6 | 27.0 | 10.1 | 32.5 |
| TOLUENE | 38.3 | 112.8 | 81.9 | 26.3 | 113.4 |
| ETHYLBENZENE | 6.7 | 19.9 | 12.9 | 4.4 | 14.6 |
| m&p-XYLENE | 24.2 | 72.8 | 45.9 | 17.3 | 51.8 |
| o-XYLENE | 8.6 | 27.7 | 18.3 | 8.3 | 20.6 |
| n-PROPYLBENZENE | 1.3 | 7.8 | 4.8 | 1.0 | 5.1 |
| m-ETHYLTOLUENE | 5.7 | 17.7 | 11.7 | 4.2 | 13.0 |
| p-ETHYLTOLUENE | 2.9 | 9.4 | 6.1 | 2.1 | 6.9 |
| 1,3,5-TRIMETHYLBENZENE | 4.1 | 11.5 | 7.5 | 2.8 | 8.7 |
| o-ETHYLTOLUENE | 2.7 | 8.4 | 5.7 | 2.4 | 9.1 |
| 1,2,4-TRIMETHYLBENZENE | 14.3 | 34.4 | 23.9 | 13.6 | 26.4 |
| n-DECANE | 2.5 | 5.4 | 5.1 | 1.2 | 4.9 |
| 1,4-DIETHYLBENZENE | 2.7 | 8.5 | 4.4 | 1.7 | 5.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.7 | 6.0 | 3.2 | 1.5 | 4.4 |
| SUM OTHER AROMATICS | 31.8 | 61.4 | 51.1 | 26.3 | 58.6 |
| SUMMARY |  |  |  |  |  |
| ACETYLENE | 21.2 | 52.1 | 50.2 | 17.5 | 43.2 |
| SUM UNKNOWNS | 1.3 | 4.7 | 1.9 | 2.1 | 4.5 |
| SUM PARAFFINS | 371.6 | 1010.8 | 646.1 | 215.1 | 1035.7 |
| SUM OLEFINS | 88.1 | 282.4 | 158.8 | 60.8 | 217.7 |
| SUM AROMATICS | 162.8 | 443.9 | 310.1 | 123.7 | 375.5 |
| SUM HYDROCARBONS | 645.2 | 1794.2 | 1167.2 | 419.2 | 1676.9 |

TABLE A-18a. Hydrocarbon concentration data for DENVER 2, CO

| Compound | ID Number and Sample Date<br>1240<br>86/06/17 | 1441<br>86/06/27 | 1513<br>86/07/02 | 1647<br>86/07/10 | 1683RA0<br>86/07/14 | 1839<br>86/07/22 | 2155<br>86/08/07 | 2302<br>86/08/15 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 30.1 | 5.3 | 16.0 | 17.1 | 33.0 | 51.7 | 40.8 | 43.7 |
| PROPANE | 20.0 | 25.7 | 33.3 | 15.0 | 23.1 | 47.2 | 31.0 | 29.9 |
| ISOBUTANE | 14.4 | 18.3 | 23.2 | 23.4 | 20.5 | 38.4 | 24.4 | 24.4 |
| n-BUTANE | 39.4 | 43.1 | 55.9 | 45.1 | 46.6 | 75.6 | 55.0 | 58.5 |
| ISOPENTANE | 54.5 | 64.9 | 87.7 | 67.0 | 75.3 | 111.3 | 81.2 | 93.8 |
| n-PENTANE | 36.6 | 38.8 | 57.1 | 43.7 | 47.6 | 71.6 | 51.1 | 62.3 |
| 2,2-DIMETHYLBUTANE | 1.7 | 1.6 | 2.4 | 1.4 | 2.1 | 2.6 | 2.1 | 2.7 |
| CYCLOPENTANE | 2.7 | 2.9 | 3.8 | 2.8 | 3.5 | 5.3 | 3.8 | 4.6 |
| 2,3-DIMETHYLBUTANE | 5.3 | 5.9 | 8.2 | 5.7 | 6.7 | 9.7 | 6.9 | 9.0 |
| 2-METHYLPENTANE | 22.2 | 23.5 | 32.7 | 23.4 | 27.8 | 40.3 | 29.7 | 37.1 |
| 3-METHYLPENTANE | 14.5 | 16.5 | 20.4 | 15.5 | 18.4 | 26.5 | 18.4 | 23.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 20.6 | 21.0 | 29.0 | 20.0 | 25.5 | 35.1 | 25.9 | 33.9 |
| METHYLCYCLOPENTANE | 10.4 | 11.1 | 15.5 | 11.0 | 13.2 | 19.2 | 13.7 | 17.8 |
| 2,4-DIMETHYLPENTANE | 3.5 | 4.2 | 6.3 | 3.9 | 5.0 | 7.2 | 4.8 | 7.2 |
| CYCLOHEXANE | 4.5 | 6.3 | 8.0 | 5.8 | 6.6 | 10.8 | 6.9 | 8.9 |
| 2-METHYLHEXANE | 15.7 | 18.5 | 15.2 | 15.7 | 19.5 | 30.4 | 20.2 | 15.9 |
| 2,3-DIMETHYLPENTANE | * | * | 10.1 | * | * | * | * | * |
| 3-METHYLHEXANE | 10.5 | 11.9 | 15.8 | 9.7 | 12.6 | 20.0 | 13.7 | 16.5 |
| 2,2,4-TRIMETHYLPENTANE | 14.8 | 17.0 | 24.5 | 13.6 | 20.6 | 28.2 | 15.5 | 25.4 |
| n-HEPTANE | 11.6 | 15.0 | 16.6 | 10.9 | 13.7 | 22.9 | 14.2 | 17.6 |
| METHYLCYCLOHEXANE | 6.5 | 7.9 | 11.2 | 6.8 | 8.4 | 13.3 | 8.9 | 11.0 |
| 2,5-DIMETHYLHEXANE | 2.7 | 3.3 | 4.3 | 2.8 | 3.5 | 5.4 | 3.5 | 4.6 |
| 2,4-DIMETHYLHEXANE | 3.0 | 3.8 | 4.7 | 3.3 | 4.0 | 6.3 | 3.9 | 5.1 |
| 2,3,4-TRIMETHYLPENTANE | 5.3 | 5.9 | 7.7 | 5.1 | 6.6 | 8.9 | 6.1 | 8.3 |
| 2-METHYLHEPTANE | 5.8 | 8.2 | 8.1 | 4.9 | 6.8 | 14.1 | 6.9 | 8.5 |
| 3-METHYLHEPTANE | 5.8 | 6.6 | 8.7 | 5.0 | 7.0 | 11.4 | 7.5 | 9.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.8 | 2.6 | 1.7 | 1.6 | 3.4 | 2.4 | 2.7 |
| n-OCTANE | 5.8 | 8.3 | 7.3 | 6.1 | 5.4 | 11.2 | 7.7 | 8.4 |
| 2,4-DIMETHYLHEPTANE | 2.6 | 3.1 | 2.7 | 0.8 | 7.3 | 2.7 | 4.1 | 1.4 |
| 4-METHYLOCTANE | 3.3 | 5.2 | 6.1 | 2.9 | 4.7 | 8.5 | 4.6 | 6.1 |
| 3-METHYLOCTANE | 2.9 | 3.6 | 4.2 | 2.5 | 3.4 | 6.8 | 3.5 | 4.4 |
| n-NONANE | 3.9 | 4.1 | 6.2 | 2.8 | 4.2 | 7.1 | 3.2 | 5.1 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.1 | 5.8 | 8.8 | 2.8 | 4.2 | 6.8 | 3.4 | 5.6 |
| SUM OTHER PARAFFINS | 44.1 | 52.2 | 84.7 | 47.6 | 51.9 | 83.0 | 51.4 | 62.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 42.5 | 23.9 | 27.4 | 32.4 | 43.3 | 62.6 | 47.6 | 58.3 |
| PROPENE | 13.6 | 14.3 | 16.9 | 10.6 | 14.7 | 21.3 | 15.9 | 20.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 11.4 | 10.9 | 13.7 | 9.0 | 12.3 | 17.4 | 13.5 | 14.6 |
| 1,3-BUTADIENE | 3.1 | 3.0 | 2.9 | 0.8 | 2.2 | 2.4 | 2.4 | 3.1 |
| t-2-BUTENE | 3.8 | 4.7 | 5.6 | 3.7 | 5.4 | 5.0 | 6.1 | 6.0 |
| c-2-BUTENE | 2.8 | 3.5 | 4.1 | 3.3 | 4.1 | 4.7 | 4.8 | 4.9 |
| 1-PENTENE | 2.3 | 2.7 | 4.1 | 2.4 | 3.3 | 4.3 | 3.9 | 4.1 |
| 2-METHYL-1-BUTENE | 3.9 | 4.8 | 6.2 | 4.3 | 5.6 | 6.7 | 6.3 | 7.1 |
| ISOPRENE | 2.1 | 2.5 | 2.3 | 1.1 | 3.2 | 2.5 | 2.7 | 3.0 |
| t-2-PENTENE | 4.2 | 5.1 | 6.7 | 4.5 | 6.4 | 6.9 | 6.6 | 8.0 |
| c-2-PENTENE | 5.8 | 7.1 | 10.4 | 6.6 | 9.4 | 9.4 | 7.6 | 10.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.0 | 4.2 | 2.8 | 0.9 | 1.7 | 7.6 | 1.9 | 6.4 |
| 2-METHYL-2-PENTENE | 1.8 | 2.1 | 2.7 | 2.1 | 2.7 | 3.3 | 2.3 | 3.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.7 | 2.0 | 3.8 | 1.3 | 3.4 | 3.3 | 1.4 | 4.7 |
| a-PINENE | * | * | 0.3 | * | 0.4 | 2.2 | * | * |
| SUM OTHER OLEFINS | 25.9 | 29.2 | 40.2 | 25.0 | 39.8 | 46.4 | 33.0 | 42.0 |
| AROMATICS | | | | | | | | |
| BENZENE | 21.1 | 22.9 | 29.7 | 18.7 | 25.5 | 37.4 | 26.8 | 34.9 |
| TOLUENE | 126.2 | 87.1 | 132.6 | 69.4 | 148.5 | 143.5 | 98.5 | 154.4 |
| ETHYLBENZENE | 9.7 | 10.9 | 15.2 | 9.9 | 12.7 | 18.5 | 11.9 | 16.2 |
| m&p-XYLENE | 36.7 | 40.4 | 53.9 | 34.9 | 46.7 | 65.4 | 43.0 | 57.9 |
| o-XYLENE | 13.7 | 15.2 | 18.4 | 13.4 | 16.9 | 25.3 | 16.7 | 21.5 |
| n-PROPYLBENZENE | 2.3 | 3.2 | 3.7 | 2.4 | 3.0 | 5.3 | 3.2 | 4.6 |
| m-ETHYLTOLUENE | 9.1 | 10.6 | 12.7 | 8.1 | 10.8 | 16.3 | 10.7 | 14.8 |
| p-ETHYLTOLUENE | 4.9 | 5.2 | 6.8 | 4.4 | 5.8 | 8.6 | 5.6 | 7.7 |
| 1,3,5-TRIMETHYLBENZENE | 6.4 | 6.5 | 8.2 | 5.4 | 7.2 | 10.4 | 7.1 | 9.8 |
| o-ETHYLTOLUENE | 4.3 | 4.8 | 6.2 | 3.9 | 5.2 | 8.0 | 5.0 | 7.0 |
| 1,2,4-TRIMETHYLBENZENE | 20.9 | 20.6 | 25.6 | 17.4 | 23.4 | 33.2 | 22.9 | 29.6 |
| n-DECANE | 3.8 | 5.0 | 3.9 | 3.1 | * | 8.9 | 4.3 | 6.7 |
| 1,4-DIETHYLBENZENE | 4.8 | 5.1 | 6.5 | 4.3 | 5.8 | 8.6 | 5.8 | 6.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.9 | 3.4 | 7.1 | 2.2 | 4.2 | 7.2 | 3.5 | 4.9 |
| SUM OTHER AROMATICS | 42.3 | 52.3 | 67.3 | 30.3 | 77.2 | 88.9 | 61.6 | 66.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 39.8 | 21.3 | 24.5 | 30.1 | 47.1 | 59.5 | 38.8 | 66.8 |
| SUM UNKNOWNS | 0.4 | 1.9 | 4.2 | 2.2 | 2.7 | 2.8 | 3.2 | 3.0 |
| SUM PARAFFINS | 432.2 | 472.6 | 650.4 | 447.1 | 542.0 | 844.4 | 577.7 | 677.2 |
| SUM OLEFINS | 126.6 | 120.6 | 150.8 | 108.6 | 158.6 | 206.7 | 156.4 | 198.1 |
| SUM AROMATICS | 310.8 | 293.8 | 398.4 | 228.2 | 393.5 | 486.0 | 327.2 | 443.8 |
| SUM HYDROCARBONS | 909.9 | 910.4 | 1228.3 | 816.4 | 1144.1 | 1599.5 | 1103.5 | 1389.0 |

TABLE A-18b. Hydrocarbon concentration data for DENVER 2, CO

| Compound | ID Number and Sample Date | | | | |
|---|---|---|---|---|---|
| | 2387<br>86/08/20 | 2451<br>86/08/21 | 2587<br>86/09/02 | 2675RA0<br>86/09/08 | 2897<br>86/09/23 |
| **PARAFFINS** | | | | | |
| ETHANE | 78.9 | 26.2 | 41.7 | 28.0 | 114.2 |
| PROPANE | 51.6 | 23.0 | 24.7 | 19.2 | 91.5 |
| ISOBUTANE | 33.1 | 12.9 | 13.3 | 12.9 | 36.1 |
| n-BUTANE | 78.0 | 36.9 | 35.2 | 34.6 | 92.7 |
| ISOPENTANE | 119.7 | 50.7 | 59.4 | 53.7 | 104.5 |
| n-PENTANE | 79.5 | 33.9 | 40.8 | 35.4 | 74.2 |
| 2,2-DIMETHYLBUTANE | 3.3 | 1.3 | 1.4 | 1.2 | 3.1 |
| CYCLOPENTANE | 6.0 | 2.5 | 3.1 | 2.5 | 5.8 |
| 2,3-DIMETHYLBUTANE | 11.0 | 4.6 | 6.2 | 5.3 | 10.4 |
| 2-METHYLPENTANE | 45.7 | 19.5 | 25.5 | 21.0 | 43.2 |
| 3-METHYLPENTANE | 28.3 | 13.1 | 16.9 | 13.9 | 27.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 41.5 | 18.2 | 23.7 | 18.6 | 43.9 |
| METHYLCYCLOPENTANE | 22.2 | 9.7 | 13.2 | 10.1 | 22.8 |
| 2,4-DIMETHYLPENTANE | 8.3 | 3.7 | 5.1 | 4.3 | 7.9 |
| CYCLOHEXANE | 12.1 | 5.2 | 7.0 | 5.4 | 10.9 |
| 2-METHYLHEXANE | 33.4 | 9.3 | 20.9 | 15.7 | 33.1 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * |
| 3-METHYLHEXANE | 20.9 | 9.0 | 12.5 | 9.6 | 22.7 |
| 2,2,4-TRIMETHYLPENTANE | 29.4 | 11.1 | 19.6 | 13.2 | 31.4 |
| n-HEPTANE | 24.3 | 10.5 | 14.1 | 10.6 | 26.9 |
| METHYLCYCLOHEXANE | 16.0 | 6.7 | 9.0 | 6.5 | 17.0 |
| 2,5-DIMETHYLHEXANE | 5.8 | 2.6 | 3.7 | 2.9 | 6.4 |
| 2,4-DIMETHYLHEXANE | 6.3 | 2.9 | 4.1 | 3.3 | 7.2 |
| 2,3,4-TRIMETHYLPENTANE | 9.5 | 4.6 | 6.8 | 5.1 | 10.7 |
| 2-METHYLHEPTANE | 10.7 | 4.7 | 7.3 | 6.8 | 12.0 |
| 3-METHYLHEPTANE | 11.5 | 4.4 | 7.9 | 5.2 | 12.9 |
| 2,2,5-TRIMETHYLHEXANE | 3.2 | 0.9 | 2.6 | 2.5 | 3.8 |
| n-OCTANE | 9.6 | 5.0 | 9.3 | 6.3 | 13.8 |
| 2,4-DIMETHYLHEPTANE | 1.8 | 1.5 | 2.2 | 1.8 | 2.0 |
| 4-METHYLOCTANE | 7.4 | 3.9 | 5.6 | 4.0 | 7.5 |
| 3-METHYLOCTANE | 5.4 | 2.5 | 4.2 | 2.8 | 5.5 |
| n-NONANE | 7.4 | 2.9 | 5.0 | 3.1 | 6.4 |
| 4-METHYLNONANE | * | * | 2.3 | * | * |
| n-DECANE | 8.2 | 3.2 | 10.0 | 2.9 | 6.4 |
| SUM OTHER PARAFFINS | 84.9 | 38.1 | 59.1 | 46.5 | 84.1 |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |
| ETHYLENE | 64.5 | 34.2 | 48.0 | 34.4 | 94.2 |
| PROPENE | 22.6 | 12.3 | 16.3 | 11.3 | 25.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 19.3 | 9.5 | 10.9 | 8.9 | 15.9 |
| 1,3-BUTADIENE | 3.2 | 2.7 | 1.7 | 1.2 | 5.8 |
| t-2-BUTENE | 8.3 | 3.6 | 3.0 | 2.7 | 6.6 |
| c-2-BUTENE | 8.1 | 2.7 | 2.9 | 2.7 | 4.6 |
| 1-PENTENE | 6.1 | 2.3 | 2.7 | 2.3 | 4.3 |
| 2-METHYL-1-BUTENE | 9.4 | 4.0 | 4.8 | 4.0 | 7.4 |
| ISOPRENE | 3.5 | 1.3 | 2.0 | 1.2 | 4.4 |
| t-2-PENTENE | 12.0 | 4.5 | 5.0 | 5.0 | 8.1 |
| c-2-PENTENE | 16.4 | 5.9 | 7.5 | 9.6 | 12.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 7.7 | 0.9 | 1.3 | 0.9 | 11.7 |
| 2-METHYL-2-PENTENE | 4.9 | 1.9 | 2.7 | 2.2 | 4.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.4 | 3.1 | 2.1 | 2.5 | 3.9 |
| a-PINENE | 0.5 | * | 0.6 | 21.7 | 11.8 |
| SUM OTHER OLEFINS | 63.8 | 26.1 | 32.7 | 29.5 | 60.6 |
| AROMATICS |  |  |  |  |  |
| BENZENE | 39.5 | 19.1 | 24.5 | 18.3 | 40.4 |
| TOLUENE | 135.4 | 95.3 | 101.9 | 110.9 | 149.0 |
| ETHYLBENZENE | 21.4 | 10.0 | 13.0 | 9.7 | 22.6 |
| m&p-XYLENE | 74.7 | 36.1 | 46.2 | 35.7 | 81.4 |
| o-XYLENE | 27.3 | 12.5 | 15.7 | 13.7 | 29.8 |
| n-PROPYLBENZENE | 5.7 | 3.0 | 3.6 | 2.9 | 7.4 |
| m-ETHYLTOLUENE | 17.0 | 8.2 | 12.3 | 8.9 | 18.9 |
| p-ETHYLTOLUENE | 8.8 | 4.4 | 6.8 | 4.6 | 9.8 |
| 1,3,5-TRIMETHYLBENZENE | 8.6 | 5.9 | 7.5 | 5.9 | 12.2 |
| o-ETHYLTOLUENE | 8.3 | 4.2 | 6.7 | 4.0 | 8.2 |
| 1,2,4-TRIMETHYLBENZENE | 35.0 | 18.6 | 26.9 | 19.5 | 37.3 |
| n-DECANE | 8.5 | 3.2 | 5.9 | 3.5 | 8.2 |
| 1,4-DIETHYLBENZENE | 7.2 | 4.5 | 6.0 | 4.2 | 10.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 6.4 | 4.5 | 8.7 | 3.2 | 5.6 |
| SUM OTHER AROMATICS | 83.9 | 42.6 | 69.6 | 77.1 | 112.0 |
| SUMMARY |  |  |  |  |  |
| ACETYLENE | 66.1 | 31.8 | 45.7 | 35.8 | 41.6 |
| SUM UNKNOWNS | 5.7 | 1.2 | 4.2 | 5.2 | 4.0 |
| SUM PARAFFINS | 916.3 | 386.6 | 524.7 | 416.2 | 999.3 |
| SUM OLEFINS | 254.3 | 115.7 | 144.7 | 140.7 | 281.7 |
| SUM AROMATICS | 488.2 | 272.6 | 356.0 | 322.7 | 553.8 |
| SUM HYDROCARBONS | 1730.8 | 808.0 | 1075.6 | 920.8 | 1880.6 |

TABLE A-19a. Hydrocarbon concentration data for DALLAS, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1024 85/06/04 | 1089 85/06/10 | 1247 85/06/21 | 1267 84/07/16 | 1350 85/06/26 | 1365 84/07/20 | 1367 85/07/01 | 1440 85/07/05 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 22.1 | 12.9 | 22.3 | 8.0 | 19.3 | 36.2 | 25.1 | 17.5 |
| PROPANE | 26.5 | 13.6 | 24.8 | 14.1 | 27.6 | 36.8 | 45.5 | 20.5 |
| ISOBUTANE | 18.8 | 7.6 | 18.8 | 15.2 | 8.3 | 15.8 | 11.7 | 9.2 |
| n-BUTANE | 45.9 | 35.1 | 36.6 | 37.2 | 33.5 | 46.7 | 36.6 | 21.8 |
| ISOPENTANE | 111.9 | 39.8 | 43.1 | 43.5 | 42.6 | 52.0 | 45.9 | 23.4 |
| n-PENTANE | 23.0 | 20.5 | 22.1 | 22.7 | 23.2 | 31.2 | 31.4 | 15.0 |
| 2,2-DIMETHYLBUTANE | 2.0 | 1.6 | 1.7 | 1.1 | 1.5 | 1.9 | 1.6 | 0.7 |
| CYCLOPENTANE | 2.0 | 1.8 | 2.1 | 2.1 | 2.2 | 2.6 | 2.4 | 1.3 |
| 2,3-DIMETHYLBUTANE | 4.7 | 3.4 | 3.9 | 3.5 | 3.7 | 4.4 | 5.3 | 1.8 |
| 2-METHYLPENTANE | 23.1 | 13.8 | 15.8 | 14.5 | 14.2 | 18.9 | 23.5 | 7.9 |
| 3-METHYLPENTANE | 22.1 | 8.6 | 12.2 | 10.7 | 9.3 | 14.6 | 23.7 | 5.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 29.4 | 10.9 | 11.2 | 8.6 | 11.2 | 13.9 | 30.5 | 7.5 |
| METHYLCYCLOPENTANE | 12.8 | 5.5 | 6.1 | 5.1 | 6.0 | 7.2 | 13.6 | 3.9 |
| 2,4-DIMETHYLPENTANE | 2.4 | 1.8 | 2.1 | 1.6 | 1.8 | 2.4 | 2.8 | 0.8 |
| CYCLOHEXANE | 4.3 | 1.7 | 2.2 | 1.4 | 2.0 | 2.2 | 5.0 | 1.5 |
| 2-METHYLHEXANE | 10.3 | 6.0 | 7.6 | 7.2 | 8.7 | 7.4 | 17.1 | 5.0 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | 11.5 | * |
| 3-METHYLHEXANE | 10.3 | 4.9 | 5.9 | 9.4 | 5.0 | 12.7 | 32.0 | 2.8 |
| 2,2,4-TRIMETHYLPENTANE | 7.2 | 5.6 | 7.4 | 6.4 | 7.3 | 8.4 | 6.7 | 2.5 |
| n-HEPTANE | 8.1 | 5.0 | 5.4 | 7.4 | 5.0 | 9.1 | 42.7 | 2.7 |
| METHYLCYCLOHEXANE | 5.5 | 2.6 | 3.7 | 3.3 | 3.4 | 3.8 | 92.1 | 2.2 |
| 2,5-DIMETHYLHEXANE | 2.0 | 1.4 | 1.9 | 1.5 | 1.5 | 2.1 | 7.6 | 1.1 |
| 2,4-DIMETHYLHEXANE | 2.4 | 1.6 | 2.0 | 1.9 | 1.6 | 2.7 | 4.4 | 0.7 |
| 2,3,4-TRIMETHYLPENTANE | 2.4 | 1.9 | 3.0 | 3.5 | 2.3 | 3.0 | 3.1 | 1.8 |
| 2-METHYLHEPTANE | 3.4 | 1.8 | 3.1 | 4.3 | 2.1 | 3.2 | 5.0 | 1.6 |
| 3-METHYLHEPTANE | 3.0 | 1.8 | 2.5 | 2.7 | 2.1 | 3.1 | 4.1 | 1.2 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 0.6 | 0.9 | 1.1 | 0.7 | 1.1 | 1.5 | 0.3 |
| n-OCTANE | 3.9 | 2.1 | 1.6 | 3.5 | 1.3 | 3.0 | 5.4 | 1.4 |
| 2,4-DIMETHYLHEPTANE | 0.4 | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | 4.1 | 1.3 | 1.7 | 2.5 | 1.3 | 3.8 | 3.2 | 0.8 |
| 3-METHYLOCTANE | 3.5 | 1.0 | 1.6 | 1.2 | 1.3 | 1.8 | 2.8 | 0.8 |
| n-NONANE | 16.6 | 1.6 | 1.6 | 3.2 | 1.3 | 4.2 | 7.2 | 1.7 |
| 4-METHYLNONANE | 3.7 | * | * | * | * | 1.0 | * | * |
| n-DECANE | 37.3 | 3.5 | 4.9 | 5.3 | 4.2 | 6.2 | 17.8 | 4.8 |
| SUM OTHER PARAFFINS | 282.4 | 43.2 | 36.1 | 67.5 | 20.4 | 69.3 | 133.3 | 21.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 17.9 | 12.8 | 17.7 | 11.3 | 17.6 | 19.2 | 21.1 | 10.0 |
| PROPENE | 7.4 | 4.3 | 7.2 | 3.9 | 5.3 | 6.2 | 6.9 | 3.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.7 | 4.4 | 5.2 | 5.4 | 5.1 | 5.7 | 5.6 | 2.4 |
| 1,3-BUTADIENE | 1.2 | 1.0 | 1.4 | 0.5 | 1.3 | 1.4 | 1.0 | 0.5 |
| t-2-BUTENE | 2.3 | 2.2 | 2.7 | 2.5 | 2.4 | 2.7 | 2.7 | 1.0 |
| c-2-BUTENE | 1.7 | 1.7 | 1.9 | 2.4 | 1.8 | 2.1 | 2.0 | 0.7 |
| 1-PENTENE | 1.7 | 1.6 | 3.3 | 3.1 | 2.0 | 2.1 | 1.7 | 0.8 |
| 2-METHYL-1-BUTENE | 2.7 | 10.4 | 3.1 | 2.9 | 3.2 | 3.4 | 3.2 | 1.0 |
| ISOPRENE | 11.1 | 2.2 | 1.6 | 4.8 | 4.5 | 3.1 | 4.9 | 1.1 |
| t-2-PENTENE | 2.9 | 3.2 | 3.9 | 3.7 | 3.8 | 4.0 | 3.7 | 1.4 |
| c-2-PENTENE | 2.9 | 4.4 | 5.0 | 5.7 | 5.1 | 3.9 | 2.1 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.9 | 0.2 | 0.8 | * | 1.5 | 0.7 | 1.2 | 0.7 |
| 2-METHYL-2-PENTENE | 2.0 | 1.3 | 2.0 | 1.4 | 1.4 | 1.9 | 1.5 | 0.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 14.8 | 4.6 | 0.7 | 2.1 | 1.1 | 1.1 | 5.5 | 2.3 |
| a-PINENE | 13.7 | 1.8 | * | * | 3.2 | 0.9 | 6.3 | 0.9 |
| SUM OTHER OLEFINS | 95.4 | 35.3 | 41.0 | 56.0 | 31.0 | 47.9 | 57.9 | 16.3 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 10.8 | 8.2 | 10.9 | 7.6 | 9.7 | 13.5 | 12.6 | 6.0 |
| TOLUENE | 56.6 | 25.8 | 31.7 | 39.3 | 29.9 | 36.5 | 188.7 | 17.6 |
| ETHYLBENZENE | 10.3 | 4.2 | 6.5 | 5.9 | 4.7 | 8.1 | 8.2 | 3.1 |
| m&p-XYLENE | 27.6 | 14.2 | 20.1 | 17.0 | 16.3 | 24.0 | 24.9 | 9.0 |
| o-XYLENE | 11.4 | 6.8 | 7.1 | 5.9 | 5.8 | 7.8 | 9.4 | 3.3 |
| n-PROPYLBENZENE | 4.3 | 1.6 | 1.4 | 2.6 | 1.2 | 2.7 | 2.0 | 0.6 |
| m-ETHYLTOLUENE | 9.7 | 5.6 | 5.6 | 4.9 | 4.7 | 7.0 | 6.8 | 2.5 |
| p-ETHYLTOLUENE | 12.2 | 2.8 | 3.4 | 4.0 | 2.7 | 4.4 | 6.1 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 5.5 | 2.7 | 3.1 | 3.5 | 2.6 | 3.6 | 6.0 | 2.0 |
| o-ETHYLTOLUENE | 8.3 | 2.6 | 2.8 | 3.3 | 2.4 | 4.4 | 7.2 | 1.5 |
| 1,2,4-TRIMETHYLBENZENE | 17.9 | 7.2 | 9.2 | 9.2 | 8.0 | 11.7 | 14.5 | 4.5 |
| n-DECANE | * | 58.3 | 20.2 | 4.4 | 44.0 | 5.6 | * | 0.9 |
| 1,4-DIETHYLBENZENE | 2.8 | 2.8 | 3.2 | 3.3 | 2.4 | 3.7 | 3.4 | 1.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 12.4 | 2.0 | 1.7 | 5.1 | 1.3 | 5.1 | 5.8 | 1.2 |
| SUM OTHER AROMATICS | 408.3 | 44.2 | 53.6 | 55.8 | 26.5 | 50.4 | 97.6 | 35.4 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 9.5 | 9.6 | 23.0 | 6.6 | 9.9 | 17.7 | 14.2 | 6.6 |
| SUM UNKNOWNS | 25.1 | 2.5 | 17.7 | 0.3 | 3.2 | 0.4 | 36.6 | 8.4 |
| SUM PARAFFINS | 759.5 | 265.9 | 317.2 | 322.5 | 277.5 | 433.8 | 703.5 | 192.7 |
| SUM OLEFINS | 185.0 | 92.1 | 98.1 | 106.5 | 91.0 | 107.0 | 127.9 | 43.6 |
| SUM AROMATICS | 599.0 | 189.5 | 181.0 | 172.5 | 162.9 | 189.0 | 393.6 | 91.1 |
| SUM HYDROCARBONS | 1579.3 | 562.1 | 638.6 | 608.5 | 544.8 | 748.5 | 1275.8 | 342.6 |

## TABLE A-19b. Hydrocarbon concentration data for DALLAS, TX

| Compound | ID Number and Sample Date<br>1441<br>84/07/26 | 1469<br>85/07/09 | 1475<br>85/07/08 | 1512<br>85/07/10 | 1542<br>85/07/11 | 1566<br>84/08/02 | 1687<br>84/08/09 | 1704<br>85/07/23 |
|---|---|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | | | |
| ETHANE | 37.3 | 18.3 | 46.1 | 18.2 | 30.6 | 41.5 | 9.2 | 66.8 |
| PROPANE | 32.8 | 21.7 | 36.9 | 19.4 | 27.1 | 45.6 | 12.6 | 64.1 |
| ISOBUTANE | 16.8 | 9.0 | 16.6 | 11.4 | 14.2 | 18.1 | 7.6 | 56.2 |
| n-BUTANE | 64.2 | 33.1 | 45.7 | 38.7 | 38.0 | 66.0 | 27.6 | 94.6 |
| ISOPENTANE | 74.0 | 42.5 | 56.0 | 48.8 | 47.7 | 83.4 | 37.0 | 131.8 |
| n-PENTANE | 41.9 | 22.3 | 30.8 | 22.7 | 27.0 | 46.5 | 18.6 | 70.4 |
| 2,2-DIMETHYLBUTANE | 2.7 | 1.4 | 2.1 | 1.6 | 1.7 | 3.4 | 1.2 | 5.1 |
| CYCLOPENTANE | 3.8 | 2.2 | 2.7 | 2.4 | 3.0 | 4.2 | 1.6 | 6.5 |
| 2,3-DIMETHYLBUTANE | 6.6 | 3.6 | 5.1 | 4.0 | 4.4 | 7.4 | 3.2 | 12.6 |
| 2-METHYLPENTANE | 32.9 | 14.3 | 19.8 | 15.2 | 16.6 | 32.0 | 12.8 | 48.6 |
| 3-METHYLPENTANE | 19.6 | 10.2 | 13.5 | 9.7 | 11.0 | 22.0 | 8.1 | 31.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 19.2 | 12.4 | 13.4 | 10.8 | 13.2 | 23.6 | 8.6 | 36.2 |
| METHYLCYCLOPENTANE | 10.3 | 6.1 | 7.7 | 5.7 | 7.3 | 13.0 | 4.7 | 21.3 |
| 2,4-DIMETHYLPENTANE | 3.4 | 1.6 | 2.5 | 1.8 | 2.2 | 4.4 | 1.6 | 7.2 |
| CYCLOHEXANE | 2.8 | 1.5 | 2.6 | 1.5 | 2.2 | 3.4 | 2.5 | 6.4 |
| 2-METHYLHEXANE | 14.1 | 8.0 | 9.2 | 7.7 | 8.6 | 21.4 | 5.5 | 30.5 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 13.4 | 5.0 | 7.4 | 4.8 | 7.1 | 21.6 | 4.2 | 21.7 |
| 2,2,4-TRIMETHYLPENTANE | 12.6 | 6.2 | 10.6 | 5.4 | 9.0 | 16.1 | 5.7 | 29.0 |
| n-HEPTANE | 14.6 | 3.6 | 6.5 | 4.1 | 6.4 | 20.1 | 4.4 | 19.1 |
| METHYLCYCLOHEXANE | 5.0 | 2.5 | 4.0 | 2.6 | 3.4 | 6.2 | 2.8 | 10.8 |
| 2,5-DIMETHYLHEXANE | 3.0 | 1.5 | 2.3 | 1.6 | 2.1 | 3.9 | 1.3 | 6.2 |
| 2,4-DIMETHYLHEXANE | 3.4 | 1.6 | 2.4 | 1.5 | 2.2 | 4.6 | 1.7 | 6.7 |
| 2,3,4-TRIMETHYLPENTANE | 5.0 | 2.5 | 4.1 | 3.5 | 3.2 | 6.2 | 2.2 | 11.3 |
| 2-METHYLHEPTANE | 4.5 | 2.0 | 3.2 | 2.2 | 3.3 | 5.3 | 1.9 | 8.2 |
| 3-METHYLHEPTANE | 4.7 | 2.2 | 3.3 | 2.2 | 2.9 | 5.6 | 1.8 | 8.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.5 | 0.6 | 1.1 | 0.8 | 1.0 | 2.0 | 0.6 | 4.0 |
| n-OCTANE | 4.1 | 2.1 | 3.5 | 1.9 | 3.0 | 4.5 | 1.5 | 8.7 |
| 2,4-DIMETHYLHEPTANE | 0.3 | * | * | * | * | 0.4 | * | * |
| 4-METHYLOCTANE | 3.1 | 1.4 | 2.2 | 1.8 | 2.0 | 5.6 | 1.5 | 5.8 |
| 3-METHYLOCTANE | 1.9 | 1.6 | 2.0 | 1.5 | 1.9 | 2.8 | 0.9 | 4.5 |
| n-NONANE | 3.5 | 1.9 | 2.1 | 1.9 | 2.2 | 5.3 | 1.4 | 7.9 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.6 | 5.1 | 7.0 | 4.9 | 5.2 | 7.0 | 2.0 | 13.7 |
| SUM OTHER PARAFFINS | 62.5 | 39.6 | 70.3 | 19.6 | 39.4 | 79.6 | 36.8 | 95.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 30.0 | 16.7 | 21.4 | 13.6 | 28.7 | 34.3 | 13.4 | 51.5 |
| PROPENE | 10.1 | 5.2 | 7.2 | 4.9 | 6.6 | 12.7 | 4.1 | 22.6 |
| 2-METHYLPROPYLENE,BUTENE-1 | 9.2 | 5.0 | 6.4 | 5.5 | 6.7 | 10.6 | 4.3 | 16.6 |
| 1,3-BUTADIENE | 2.4 | 1.4 | 1.3 | 0.8 | 1.1 | 3.1 | 0.7 | 3.8 |
| t-2-BUTENE | 4.9 | 2.4 | 2.9 | 2.9 | 2.5 | 5.2 | 2.3 | 8.1 |
| c-2-BUTENE | 3.7 | 1.8 | 2.0 | 2.2 | 1.9 | 3.7 | 1.8 | 5.9 |
| 1-PENTENE | 5.6 | 1.9 | 2.4 | 2.2 | 2.2 | 5.3 | 1.6 | 6.2 |
| 2-METHYL-1-BUTENE | 5.4 | 2.9 | 4.3 | 3.4 | 3.0 | 6.2 | 2.7 | 13.3 |
| ISOPRENE | 3.1 | 3.9 | 3.7 | 3.6 | 3.3 | 4.4 | 1.9 | 6.2 |
| t-2-PENTENE | 6.8 | 3.6 | 4.4 | 4.2 | 4.2 | 7.6 | 3.5 | 12.7 |
| c-2-PENTENE | 7.7 | 5.5 | 4.4 | 2.4 | 4.5 | 9.3 | 3.6 | 16.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.3 | 1.2 | 1.7 | 1.4 | 1.3 | 1.5 | 1.8 | 6.0 |
| 2-METHYL-2-PENTENE | 3.4 | 1.1 | 1.4 | 1.3 | 1.4 | 4.1 | 1.6 | 6.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.5 | 4.3 | 1.2 | 1.6 | 1.8 | 1.9 | 1.8 | 4.3 |
| a-PINENE | 1.4 | 7.2 | 8.8 | 2.7 | 1.9 | 1.4 | 0.9 | 4.9 |
| SUM OTHER OLEFINS | 55.8 | 39.2 | 53.5 | 29.6 | 42.7 | 66.2 | 34.2 | 78.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 19.4 | 9.5 | 15.3 | 9.4 | 12.1 | 24.4 | 7.9 | 34.8 |
| TOLUENE | 68.1 | 28.3 | 47.8 | 28.8 | 37.4 | 69.0 | 27.1 | 109.2 |
| ETHYLBENZENE | 11.1 | 4.7 | 7.8 | 4.8 | 6.5 | 17.7 | 4.6 | 20.0 |
| m&p-XYLENE | 33.2 | 15.2 | 23.9 | 16.3 | 20.9 | 49.2 | 14.7 | 61.8 |
| o-XYLENE | 11.6 | 5.7 | 9.0 | 6.9 | 8.9 | 15.3 | 5.4 | 22.8 |
| n-PROPYLBENZENE | 4.0 | 1.2 | 1.7 | 1.1 | 1.6 | 5.0 | 1.8 | 6.6 |
| m-ETHYLTOLUENE | 10.0 | 4.6 | 7.3 | 4.6 | 6.3 | 12.1 | 4.3 | 19.2 |
| p-ETHYLTOLUENE | 5.8 | 2.6 | 4.0 | 2.5 | 3.6 | 7.0 | 2.8 | 9.8 |
| 1,3,5-TRIMETHYLBENZENE | 5.9 | 2.7 | 4.2 | 3.0 | 3.9 | 7.2 | 2.6 | 12.1 |
| o-ETHYLTOLUENE | 5.3 | 2.4 | 4.0 | 2.5 | 3.2 | 6.6 | 2.3 | 9.8 |
| 1,2,4-TRIMETHYLBENZENE | 16.5 | 8.3 | 12.2 | 8.1 | 10.6 | 19.9 | 7.1 | 32.8 |
| n-DECANE | 5.9 | 43.2 | * | 1.3 | 4.4 | 7.3 | 3.5 | 10.4 |
| 1,4-DIETHYLBENZENE | 4.9 | 2.5 | 3.5 | 2.4 | 3.4 | 6.3 | 2.3 | 10.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 5.2 | 2.0 | 3.0 | 1.3 | 2.2 | 5.6 | 2.7 | 7.9 |
| SUM OTHER AROMATICS | 56.0 | 26.1 | 253.7 | 35.0 | 44.5 | 76.8 | 29.3 | 107.8 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 21.1 | 10.4 | 32.2 | 12.2 | 17.4 | 38.6 | 9.6 | 77.0 |
| SUM UNKNOWNS | 18.9 | 14.8 | 5.2 | 9.5 | 3.4 | 5.8 | 0.5 | 5.3 |
| SUM PARAFFINS | 532.8 | 289.2 | 444.3 | 281.0 | 350.9 | 634.3 | 234.5 | 953.5 |
| SUM OLEFINS | 153.1 | 104.2 | 127.7 | 83.2 | 114.6 | 178.3 | 81.0 | 264.7 |
| SUM AROMATICS | 263.5 | 159.6 | 397.9 | 128.6 | 169.9 | 329.9 | 119.1 | 475.8 |
| SUM HYDROCARBONS | 989.6 | 579.8 | 1007.4 | 516.9 | 656.4 | 1187.1 | 444.9 | 1776.5 |

TABLE A-19c. Hydrocarbon concentration data for DALLAS, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1728 86/07/15 | 1748 84/08/14 | 1849 85/08/01 | 1852 84/08/21 | 1890 86/07/23 | 1892 85/08/02 | 1936 84/08/24 | 1960 85/08/07 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 13.1 | 45.4 | 10.5 | 9.4 | 42.8 | 46.2 | 45.4 | 19.8 |
| PROPANE | 15.5 | 60.3 | 15.6 | 11.0 | 39.1 | 42.1 | 42.7 | 19.6 |
| ISOBUTANE | 5.3 | 22.6 | 6.1 | 5.4 | 16.5 | 17.3 | 15.2 | 8.8 |
| n-BUTANE | 18.7 | 64.5 | 25.2 | 21.2 | 40.3 | 69.0 | 44.5 | 35.6 |
| ISOPENTANE | 29.4 | 68.1 | 37.9 | 28.4 | 54.2 | 98.3 | 42.7 | 45.5 |
| n-PENTANE | 13.7 | 39.5 | 14.6 | 15.7 | 29.0 | 49.4 | 43.4 | 22.5 |
| 2,2-DIMETHYLBUTANE | 0.8 | 2.7 | 0.8 | 0.8 | 1.9 | 3.2 | 1.4 | 1.2 |
| CYCLOPENTANE | 1.3 | 3.5 | 1.2 | 1.4 | 4.9 | 4.6 | 2.2 | 2.5 |
| 2,3-DIMETHYLBUTANE | 2.1 | 5.9 | 2.4 | 2.5 | 5.0 | 8.8 | 2.3 | 3.6 |
| 2-METHYLPENTANE | 8.5 | 25.0 | 9.7 | 10.6 | 18.1 | 33.4 | 14.8 | 13.3 |
| 3-METHYLPENTANE | 5.2 | 17.0 | 6.9 | 7.6 | 12.8 | 23.4 | 11.7 | 8.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.7 | 20.1 | 7.7 | 6.6 | 12.6 | 25.7 | 12.4 | 9.5 |
| METHYLCYCLOPENTANE | 3.5 | 10.6 | 3.9 | 4.1 | 7.0 | 14.6 | 6.6 | 5.2 |
| 2,4-DIMETHYLPENTANE | 0.8 | 3.2 | 1.0 | 1.2 | 2.1 | 5.1 | 1.8 | 1.8 |
| CYCLOHEXANE | 1.0 | 3.3 | 1.2 | 1.2 | 2.1 | 4.6 | 2.0 | 1.5 |
| 2-METHYLHEXANE | 10.9 | 13.5 | 6.1 | 4.2 | 18.0 | 20.8 | 8.3 | 9.0 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 3.4 | 12.1 | 3.4 | 3.1 | 8.5 | 12.5 | 7.6 | 5.0 |
| 2,2,4-TRIMETHYLPENTANE | 3.6 | 10.1 | 4.1 | 3.6 | 8.0 | 21.2 | 7.6 | 7.4 |
| n-HEPTANE | 2.6 | 11.3 | 2.3 | 3.3 | 5.9 | 13.7 | 17.2 | 3.5 |
| METHYLCYCLOHEXANE | 1.8 | 5.9 | 1.8 | 2.0 | 4.0 | 7.6 | 4.2 | 2.7 |
| 2,5-DIMETHYLHEXANE | 1.0 | 2.6 | 1.0 | 0.9 | 2.2 | 4.3 | 1.7 | 1.7 |
| 2,4-DIMETHYLHEXANE | 1.0 | 3.0 | 0.9 | 1.2 | 2.1 | 4.7 | 1.8 | 1.7 |
| 2,3,4-TRIMETHYLPENTANE | 1.9 | 3.6 | 1.7 | 1.8 | 3.6 | 8.1 | 2.3 | 3.1 |
| 2-METHYLHEPTANE | 1.7 | 4.4 | 0.8 | 2.1 | 3.5 | 5.4 | 2.1 | 1.2 |
| 3-METHYLHEPTANE | 1.6 | 4.3 | 1.3 | 1.5 | 3.6 | 5.5 | 2.6 | 2.0 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 1.3 | 0.5 | 0.4 | 1.0 | 2.6 | 0.8 | 0.9 |
| n-OCTANE | 1.5 | 4.6 | 1.3 | 1.3 | 3.6 | 6.3 | 4.0 | 2.2 |
| 2,4-DIMETHYLHEPTANE | 0.6 | 0.2 | * | * | 2.0 | * | * | * |
| 4-METHYLOCTANE | 1.2 | 4.0 | 0.9 | 1.1 | 2.5 | 4.3 | 3.2 | 1.2 |
| 3-METHYLOCTANE | 1.4 | 2.6 | 0.7 | 0.8 | 2.3 | 3.6 | 1.6 | 1.1 |
| n-NONANE | 1.5 | 6.7 | 1.3 | 1.3 | 2.5 | 6.1 | 5.1 | 1.6 |
| 4-METHYLNONANE | * | 1.6 | * | * | * | * | * | * |
| n-DECANE | 4.4 | 9.6 | 3.7 | 1.6 | 4.9 | 10.2 | 6.8 | 2.8 |
| SUM OTHER PARAFFINS | 26.6 | 76.0 | 22.1 | 39.9 | 45.0 | 59.0 | 61.3 | 15.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 11.9 | 25.3 | 9.5 | 11.5 | 19.5 | 37.3 | 16.3 | 15.0 |
| PROPENE | 3.8 | 11.7 | 2.7 | 3.1 | 6.9 | 13.1 | 4.2 | 5.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.0 | 7.3 | 3.4 | 3.3 | 5.9 | 13.2 | 4.0 | 4.7 |
| 1,3-BUTADIENE | 0.3 | 2.3 | 0.2 | * | 0.6 | 2.3 | 0.6 | 1.1 |
| t-2-BUTENE | 0.7 | 3.7 | 1.7 | 1.3 | 1.8 | 5.3 | 1.6 | 2.0 |
| c-2-BUTENE | 0.9 | 2.6 | 1.3 | 1.2 | 1.6 | 4.0 | 1.2 | 1.5 |
| 1-PENTENE | 1.0 | 4.2 | 1.3 | 1.6 | 1.8 | 4.2 | 2.0 | 1.6 |
| 2-METHYL-1-BUTENE | 1.6 | 4.2 | 2.1 | 2.3 | 4.3 | 6.9 | 2.5 | 2.3 |
| ISOPRENE | 1.8 | 9.9 | 1.8 | 2.1 | 1.8 | 5.1 | * | 2.0 |
| t-2-PENTENE | 1.8 | 1.1 | 2.4 | 2.7 | 3.1 | 8.7 | * | 3.0 |
| c-2-PENTENE | 2.0 | 4.6 | 3.2 | 4.3 | 13.5 | 11.6 | 3.8 | 3.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 1.8 | 0.3 | 0.1 | 0.6 | 3.5 | 1.3 | 1.4 |
| 2-METHYL-2-PENTENE | 0.7 | 2.3 | 0.8 | 1.2 | 1.3 | 5.0 | 1.5 | 1.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.0 | 2.0 | 0.9 | 0.9 | 2.9 | 4.6 | 1.6 | 2.0 |
| a-PINENE | 5.9 | 1.2 | 0.8 | 0.7 | 4.4 | 4.0 | * | 1.3 |
| SUM OTHER OLEFINS | 10.1 | 54.4 | 9.0 | 30.1 | 17.9 | 57.2 | 48.2 | 19.1 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 7.7 | 17.9 | 5.7 | 5.8 | 16.2 | 23.2 | 10.0 | 9.7 |
| TOLUENE | 30.4 | 44.8 | 17.2 | 26.2 | 53.7 | 75.3 | 31.8 | 30.1 |
| ETHYLBENZENE | 4.9 | 10.2 | 2.7 | 4.1 | 9.5 | 20.0 | 6.7 | 4.7 |
| m&p-XYLENE | 16.0 | 30.5 | 9.2 | 12.7 | 27.8 | 60.0 | 21.1 | 15.4 |
| o-XYLENE | 8.0 | 10.2 | 4.0 | 4.4 | 11.6 | 21.1 | 6.4 | 7.2 |
| n-PROPYLBENZENE | 1.0 | 2.8 | 0.6 | 0.9 | 2.7 | 3.8 | 3.9 | 1.2 |
| m-ETHYLTOLUENE | 4.4 | 7.7 | 2.9 | 3.5 | 8.3 | 13.3 | 6.0 | 4.8 |
| p-ETHYLTOLUENE | 2.2 | 5.2 | 1.5 | 2.4 | 4.3 | 6.8 | 3.6 | 2.6 |
| 1,3,5-TRIMETHYLBENZENE | 2.7 | 4.2 | 1.7 | 2.1 | 4.9 | 8.7 | 4.1 | 3.0 |
| o-ETHYLTOLUENE | 2.5 | 4.7 | 1.5 | 2.0 | 4.9 | 6.3 | 4.0 | 2.2 |
| 1,2,4-TRIMETHYLBENZENE | 16.5 | 14.4 | 10.7 | 6.0 | 22.0 | 22.1 | 8.7 | 8.4 |
| n-DECANE | 2.5 | 5.4 | 0.8 | 2.7 | 3.5 | 5.8 | * | 2.1 |
| 1,4-DIETHYLBENZENE | 2.3 | 3.9 | 1.2 | 1.9 | 3.8 | 5.3 | 3.4 | 2.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 16.4 | 6.4 | 0.9 | 2.0 | 16.0 | 5.3 | 4.7 | 1.2 |
| SUM OTHER AROMATICS | 61.0 | 48.1 | 13.5 | 32.4 | 60.7 | 64.7 | 79.0 | 28.9 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 8.7 | 14.0 | 6.3 | 6.2 | 19.8 | 36.5 | 8.1 | 13.3 |
| SUM UNKNOWNS | 11.2 | 0.9 | 1.1 | 13.8 | 9.9 | 11.1 | 105.2 | 3.3 |
| SUM PARAFFINS | 193.3 | 570.5 | 199.9 | 198.8 | 413.0 | 643.4 | 428.6 | 263.0 |
| SUM OLEFINS | 51.1 | 139.2 | 42.0 | 66.9 | 88.6 | 186.8 | 89.3 | 68.0 |
| SUM AROMATICS | 178.9 | 217.1 | 74.8 | 109.8 | 250.3 | 342.2 | 193.9 | 124.2 |
| SUM HYDROCARBONS | 443.4 | 941.7 | 324.2 | 395.6 | 782.0 | 1220.2 | 825.4 | 471.9 |

## TABLE A-19d. Hydrocarbon concentration data for DALLAS, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1968 86/07/28 | 2006 84/08/29 | 2066 85/08/12 | 2068 86/08/01 | 2152 84/09/07 | 2168 86/08/07 | 2203 84/09/11 | 2282 85/08/28 |
| PARAFFINS | | | | | | | | |
| ETHANE | 13.0 | 10.9 | 34.4 | 47.6 | 25.0 | 7.9 | 12.5 | 29.3 |
| PROPANE | 13.2 | 12.9 | 31.9 | 51.1 | 20.9 | 8.5 | 14.2 | 31.4 |
| ISOBUTANE | 4.8 | 6.6 | 15.4 | 13.3 | 10.8 | 3.6 | 6.5 | 17.5 |
| n-BUTANE | 14.8 | 29.8 | 51.0 | 44.1 | 37.6 | 10.2 | 28.4 | 49.2 |
| ISOPENTANE | 22.8 | 40.2 | 66.8 | 60.4 | 48.4 | 18.0 | 34.5 | 70.2 |
| n-PENTANE | 7.9 | 22.8 | 33.6 | 32.1 | 27.6 | 5.3 | 19.8 | 34.7 |
| 2,2-DIMETHYLBUTANE | * | 2.9 | 1.2 | 2.0 | 3.2 | * | 1.5 | 2.1 |
| CYCLOPENTANE | 0.4 | 2.2 | 3.0 | 3.3 | 2.6 | 0.7 | 1.9 | 3.8 |
| 2,3-DIMETHYLBUTANE | 1.4 | 3.7 | 5.9 | 5.0 | 4.5 | 1.0 | 3.3 | 6.5 |
| 2-METHYLPENTANE | 5.4 | 18.0 | 22.4 | 21.9 | 20.1 | 3.8 | 14.7 | 23.5 |
| 3-METHYLPENTANE | 4.3 | 11.7 | 13.9 | 12.2 | 18.0 | 2.4 | 8.3 | 14.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.3 | 10.3 | 14.5 | 13.6 | 15.3 | 2.8 | 9.8 | 15.9 |
| METHYLCYCLOPENTANE | 2.5 | 5.8 | 8.5 | 8.3 | 9.0 | 1.5 | 5.6 | 9.2 |
| 2,4-DIMETHYLPENTANE | 0.6 | 1.6 | 3.1 | 2.3 | 2.5 | 4.5 | 1.7 | 3.2 |
| CYCLOHEXANE | 0.8 | 1.5 | 2.5 | 2.1 | 2.6 | 0.6 | 1.5 | 3.1 |
| 2-METHYLHEXANE | 10.4 | 7.2 | 12.6 | 15.2 | 9.9 | 6.4 | 6.6 | 14.3 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 3.0 | 7.4 | 7.7 | 8.7 | 8.4 | 1.2 | 5.3 | 8.3 |
| 2,2,4-TRIMETHYLPENTANE | 2.4 | 7.0 | 15.2 | 8.9 | 9.5 | 1.9 | 6.2 | 15.3 |
| n-HEPTANE | 2.1 | 5.5 | 6.7 | 6.5 | 8.0 | 1.4 | 4.6 | 7.5 |
| METHYLCYCLOHEXANE | 1.5 | 2.9 | 6.9 | 4.1 | 4.0 | 1.0 | 2.7 | 5.3 |
| 2,5-DIMETHYLHEXANE | 0.2 | 1.5 | 2.8 | 2.4 | 2.2 | 0.5 | 1.5 | 3.2 |
| 2,4-DIMETHYLHEXANE | 0.7 | 2.0 | 3.0 | 2.4 | 2.4 | 0.4 | 1.6 | 3.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.2 | 2.4 | 6.0 | 3.9 | 3.5 | 0.7 | 2.4 | 5.9 |
| 2-METHYLHEPTANE | 1.7 | 3.0 | 3.6 | 4.1 | 3.1 | 0.4 | 2.3 | 3.8 |
| 3-METHYLHEPTANE | 1.0 | 2.2 | 3.9 | 3.5 | 3.2 | 0.8 | 2.1 | 4.0 |
| 2,2,5-TRIMETHYLHEXANE | 0.4 | 0.8 | 1.6 | 1.0 | 1.2 | 0.5 | 0.7 | 1.7 |
| n-OCTANE | 1.1 | 2.8 | 4.1 | 3.6 | 2.3 | 1.0 | 1.3 | 3.8 |
| 2,4-DIMETHYLHEPTANE | 0.6 | * | * | 0.7 | 0.2 | * | * | * |
| 4-METHYLOCTANE | 0.8 | 2.3 | 2.9 | 2.5 | 3.4 | 0.6 | 1.0 | 2.3 |
| 3-METHYLOCTANE | 0.9 | 1.0 | 2.3 | 2.5 | 1.8 | 0.7 | 0.8 | 1.7 |
| n-NONANE | 1.1 | 1.9 | 3.0 | 2.9 | 3.7 | 0.8 | 1.4 | 2.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.7 | 1.9 | 5.2 | 6.0 | 6.1 | 7.8 | 1.9 | 2.8 |
| SUM OTHER PARAFFINS | 23.3 | 38.9 | 120.0 | 43.8 | 45.9 | 58.7 | 28.5 | 43.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 8.8 | 15.1 | 22.4 | 29.1 | 23.7 | 6.8 | 16.0 | 35.7 |
| PROPENE | 2.3 | 4.4 | 8.0 | 10.7 | 6.3 | 1.7 | 4.6 | 8.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.2 | 4.7 | 6.9 | 7.9 | 5.9 | 1.6 | 4.6 | 7.5 |
| 1,3-BUTADIENE | 0.1 | 0.9 | 1.3 | 1.1 | 1.1 | 0.4 | 1.1 | 1.1 |
| t-2-BUTENE | 0.5 | 1.9 | 3.0 | 2.1 | 1.9 | 0.3 | 2.0 | 2.9 |
| c-2-BUTENE | 0.4 | 1.9 | 2.2 | 1.8 | 1.8 | * | 1.5 | 2.4 |
| 1-PENTENE | 0.4 | 2.9 | 2.5 | 2.3 | 3.0 | 0.3 | 1.8 | 2.6 |
| 2-METHYL-1-BUTENE | 0.6 | 3.3 | 3.9 | 3.5 | 3.6 | 2.3 | 2.9 | 4.1 |
| ISOPRENE | 2.8 | 3.7 | 5.7 | 1.8 | 2.2 | 1.2 | 2.0 | 3.2 |
| t-2-PENTENE | 2.1 | 4.2 | 5.3 | 3.2 | 4.0 | 0.1 | 3.4 | 5.3 |
| c-2-PENTENE | * | 4.9 | 6.7 | 3.4 | 4.5 | * | 4.7 | 7.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 1.8 | 1.7 | * | 1.0 | * | 0.2 | 3.7 |
| 2-METHYL-2-PENTENE | 0.3 | 1.7 | 2.5 | 1.6 | 1.9 | * | 1.5 | 2.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.6 | 1.0 | 1.6 | 2.6 | 1.2 | 2.2 | 0.7 | 1.3 |
| a-PINENE | 4.5 | * | 1.7 | 9.2 | 1.8 | 11.4 | * | 1.0 |
| SUM OTHER OLEFINS | 7.7 | 38.3 | 37.5 | 32.4 | 41.5 | 16.8 | 37.8 | 35.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 4.8 | 8.9 | 15.8 | 21.2 | 13.5 | 4.1 | 9.3 | 17.8 |
| TOLUENE | 25.6 | 29.3 | 49.2 | 73.8 | 43.7 | 17.2 | 29.4 | 48.0 |
| ETHYLBENZENE | 3.2 | 5.1 | 8.8 | 10.8 | 7.8 | 3.6 | 5.3 | 8.9 |
| m&p-XYLENE | 10.2 | 16.2 | 27.8 | 30.1 | 23.6 | 10.7 | 17.0 | 29.1 |
| o-XYLENE | 5.2 | 5.5 | 11.4 | 12.6 | 8.5 | 6.8 | 6.0 | 10.9 |
| n-PROPYLBENZENE | 0.6 | 2.1 | 1.9 | 2.6 | 2.1 | 0.5 | 1.1 | 2.2 |
| m-ETHYLTOLUENE | 3.0 | 5.3 | 8.3 | 9.0 | 6.4 | 2.7 | 4.7 | 6.7 |
| p-ETHYLTOLUENE | 1.5 | 2.8 | 4.9 | 4.6 | 3.9 | 1.3 | 2.7 | 2.2 |
| 1,3,5-TRIMETHYLBENZENE | 1.9 | 2.7 | 4.9 | 5.5 | 2.2 | 1.9 | 2.9 | 4.1 |
| o-ETHYLTOLUENE | 2.2 | 2.6 | 4.5 | 5.1 | 4.0 | 3.3 | 2.3 | 3.8 |
| 1,2,4-TRIMETHYLBENZENE | 10.6 | 7.8 | 14.2 | 21.7 | 11.3 | 6.9 | 8.2 | 16.4 |
| n-DECANE | 1.4 | * | 5.9 | 4.1 | 5.0 | 2.1 | 3.7 | 3.9 |
| 1,4-DIETHYLBENZENE | 1.4 | 2.5 | 4.1 | 3.3 | 3.4 | 3.1 | 2.3 | 3.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 13.0 | 2.4 | 3.7 | 12.3 | 4.4 | 34.8 | 1.9 | 2.9 |
| SUM OTHER AROMATICS | 51.1 | 49.5 | 42.2 | 75.8 | 44.5 | 112.5 | 29.9 | 35.1 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 5.0 | 7.7 | 26.3 | 17.0 | 14.9 | 3.1 | 9.4 | 35.1 |
| SUM UNKNOWNS | 7.8 | 0.2 | 8.3 | 14.5 | 6.8 | 14.5 | 23.0 | 10.5 |
| SUM PARAFFINS | 153.7 | 273.1 | 517.1 | 443.3 | 368.2 | 157.1 | 236.6 | 444.1 |
| SUM OLEFINS | 35.9 | 91.2 | 113.5 | 113.4 | 106.0 | 45.4 | 85.4 | 124.7 |
| SUM AROMATICS | 136.2 | 143.3 | 208.2 | 293.1 | 184.8 | 211.9 | 127.3 | 196.0 |
| SUM HYDROCARBONS | 338.8 | 515.7 | 873.9 | 881.5 | 680.9 | 432.2 | 481.9 | 810.6 |

TABLE A-19e. Hydrocarbon concentration data for DALLAS, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2330<br>84/09/19 | 2332<br>86/08/15 | 2336<br>85/09/03 | 2373<br>85/09/05 | 2449<br>86/08/22 | 2455<br>85/09/11 | 2469<br>85/09/12 | 2498<br>84/09/28 |
| PARAFFINS | | | | | | | | |
| ETHANE | 42.2 | 12.3 | 34.1 | 13.3 | 21.7 | 34.5 | 29.5 | 12.2 |
| PROPANE | 26.5 | 14.4 | 26.4 | 15.6 | 13.8 | 27.7 | 27.0 | 11.0 |
| ISOBUTANE | 11.8 | 4.4 | 13.6 | 6.6 | 6.6 | 14.6 | 13.4 | 3.4 |
| n-BUTANE | 49.5 | 13.4 | 51.1 | 20.4 | 24.7 | 39.7 | 50.1 | 12.8 |
| ISOPENTANE | 59.0 | 15.4 | 72.6 | 29.3 | 34.9 | 55.3 | 61.1 | 13.4 |
| n-PENTANE | 31.8 | 7.9 | 35.6 | 14.1 | 15.8 | 26.2 | 28.9 | 8.2 |
| 2,2-DIMETHYLBUTANE | 6.3 | 0.4 | 1.8 | 0.5 | 0.9 | 1.4 | 1.3 | 0.5 |
| CYCLOPENTANE | 3.1 | 0.7 | 3.0 | 1.2 | 1.7 | 2.5 | 2.6 | 0.7 |
| 2,3-DIMETHYLBUTANE | 5.5 | 1.4 | 6.3 | 2.6 | 2.8 | 4.8 | 5.2 | 1.2 |
| 2-METHYLPENTANE | 22.6 | 5.4 | 23.1 | 8.7 | 11.7 | 17.9 | 19.1 | 5.4 |
| 3-METHYLPENTANE | 15.9 | 4.7 | 14.2 | 5.8 | 6.5 | 11.7 | 12.4 | 3.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 16.8 | 3.6 | 15.6 | 5.7 | 7.4 | 12.3 | 13.7 | 4.3 |
| METHYLCYCLOPENTANE | 9.2 | 2.4 | 9.1 | 3.5 | 4.0 | 7.1 | 8.0 | 2.4 |
| 2,4-DIMETHYLPENTANE | 2.7 | 0.7 | 3.2 | 1.2 | 1.3 | 2.4 | 2.6 | 0.8 |
| CYCLOHEXANE | 2.6 | 0.6 | 2.7 | 1.0 | 1.0 | 2.0 | 2.1 | 0.8 |
| 2-METHYLHEXANE | 8.2 | 2.4 | 16.0 | 6.4 | 4.8 | 10.8 | 12.5 | 2.7 |
| 2,3-DIMETHYLPENTANE | 3.3 | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 9.1 | 2.1 | 9.1 | 3.3 | 3.6 | 6.2 | 8.1 | 3.6 |
| 2,2,4-TRIMETHYLPENTANE | 11.7 | 2.5 | 13.2 | 5.1 | 6.3 | 8.8 | 9.4 | 3.2 |
| n-HEPTANE | 9.5 | 2.3 | 7.5 | 2.1 | 3.5 | 5.4 | 7.3 | 2.4 |
| METHYLCYCLOHEXANE | 4.8 | 1.3 | 5.1 | 2.3 | 1.9 | 4.2 | 4.8 | 1.7 |
| 2,5-DIMETHYLHEXANE | 2.8 | 0.3 | 2.7 | 1.1 | 1.6 | 2.2 | 2.3 | 0.8 |
| 2,4-DIMETHYLHEXANE | 3.0 | 0.6 | 2.8 | 1.2 | 1.1 | 2.3 | 2.5 | 0.9 |
| 2,3,4-TRIMETHYLPENTANE | 4.5 | 1.1 | 5.9 | 2.4 | 2.2 | 3.8 | 4.6 | 1.1 |
| 2-METHYLHEPTANE | 3.9 | 0.9 | 3.8 | 1.6 | * | 3.9 | 3.7 | 1.0 |
| 3-METHYLHEPTANE | 4.1 | 0.8 | 3.8 | 1.4 | 1.7 | 3.0 | 3.6 | 1.1 |
| 2,2,5-TRIMETHYLHEXANE | 1.4 | 0.5 | 1.7 | 0.6 | 1.0 | 1.1 | 1.6 | 0.3 |
| n-OCTANE | 4.1 | 0.8 | 3.2 | 1.4 | 2.8 | 3.0 | 4.2 | 1.2 |
| 2,4-DIMETHYLHEPTANE | 0.3 | * | * | 1.3 | 0.5 | 0.8 | 0.9 | * |
| 4-METHYLOCTANE | 4.5 | 0.4 | 2.6 | 0.9 | 2.3 | 1.8 | 2.2 | 0.8 |
| 3-METHYLOCTANE | 2.4 | 0.5 | 2.0 | 0.6 | 1.6 | 1.5 | 1.4 | 0.5 |
| n-NONANE | 5.2 | 0.6 | 3.1 | 1.2 | 3.9 | 2.0 | 2.2 | 1.3 |
| 4-METHYLNONANE | * | * | * | * | 1.7 | * | * | * |
| n-DECANE | 7.6 | 1.2 | 3.8 | 1.7 | 5.9 | 2.5 | 3.0 | 1.9 |
| SUM OTHER PARAFFINS | 52.5 | 6.3 | 78.7 | 26.2 | 28.8 | 37.5 | 46.8 | 21.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 31.6 | 10.3 | 30.3 | 11.3 | 13.2 | 24.4 | 26.6 | 10.2 |
| PROPENE | 10.9 | 2.4 | 9.6 | 3.4 | 3.7 | 5.1 | 8.3 | 2.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 8.7 | 2.0 | 9.1 | 3.3 | 3.8 | 5.0 | 7.9 | 2.3 |
| 1,3-BUTADIENE | 2.5 | 0.2 | 1.7 | 0.6 | 0.1 | 0.5 | 2.0 | 0.4 |
| t-2-BUTENE | 3.3 | 0.6 | 4.0 | 1.3 | 0.8 | * | 3.6 | 0.5 |
| c-2-BUTENE | 2.3 | 0.5 | 3.1 | 1.1 | 0.8 | 1.9 | 2.6 | 0.4 |
| 1-PENTENE | 3.0 | 0.4 | 3.1 | 1.1 | 0.8 | 2.1 | 2.8 | 0.6 |
| 2-METHYL-1-BUTENE | 4.1 | 0.6 | 4.7 | 1.8 | 5.8 | 3.5 | 4.6 | 0.8 |
| ISOPRENE | 0.8 | * | 5.0 | 1.4 | 0.7 | 2.0 | 2.0 | 0.5 |
| t-2-PENTENE | 4.7 | 0.4 | 6.2 | 2.4 | 53.3 | 4.0 | 5.6 | 1.0 |
| c-2-PENTENE | 0.6 | * | 7.8 | 2.8 | * | 5.3 | 4.4 | 1.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.9 | 0.1 | * | 0.3 | 0.3 | 0.8 | 1.1 | 0.0 |
| 2-METHYL-2-PENTENE | 2.0 | 0.1 | 2.5 | 1.0 | 0.4 | 1.7 | 2.2 | 0.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.8 | 0.5 | 1.5 | 0.6 | 1.9 | 1.2 | 1.1 | 0.7 |
| a-PINENE | 1.0 | * | 1.8 | 1.6 | * | 0.9 | 1.4 | * |
| SUM OTHER OLEFINS | 59.5 | 3.9 | 41.1 | 12.0 | 7.5 | 19.9 | 28.3 | 20.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 17.9 | 4.9 | 18.3 | 6.8 | 9.7 | 14.0 | 15.1 | 4.5 |
| TOLUENE | 58.9 | 17.0 | 50.7 | 21.1 | 34.9 | 44.6 | 44.1 | 17.7 |
| ETHYLBENZENE | 17.0 | 2.7 | 8.7 | 3.5 | 6.5 | 6.5 | 7.8 | 3.2 |
| m&p-XYLENE | 59.5 | 8.1 | 28.8 | 12.0 | 19.1 | 20.9 | 22.6 | 10.7 |
| o-XYLENE | 18.3 | 4.0 | 11.7 | 5.0 | 7.5 | 8.0 | 8.7 | 3.1 |
| n-PROPYLBENZENE | 4.7 | 0.6 | 2.0 | 0.8 | 2.3 | 2.2 | 1.7 | 1.1 |
| m-ETHYLTOLUENE | 10.9 | 2.7 | 8.7 | 3.4 | 7.1 | 6.2 | 6.9 | 2.7 |
| p-ETHYLTOLUENE | 6.2 | 1.3 | 4.7 | 1.9 | 4.2 | 3.2 | 3.4 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 4.6 | 1.7 | 5.3 | 2.3 | 3.6 | 3.5 | 4.1 | 1.7 |
| o-ETHYLTOLUENE | 5.6 | 1.7 | 4.3 | 1.8 | 4.2 | 2.9 | 3.2 | 1.5 |
| 1,2,4-TRIMETHYLBENZENE | 16.0 | 7.2 | 17.8 | 8.6 | 17.1 | 10.2 | 14.3 | 4.5 |
| n-DECANE | 5.5 | 0.8 | 4.3 | 1.1 | 4.0 | 2.4 | 2.2 | 2.9 |
| 1,4-DIETHYLBENZENE | 4.2 | 1.0 | 3.7 | 1.5 | 2.2 | 2.4 | 2.8 | 1.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.9 | 3.0 | 2.9 | * | 5.7 | * | * | 1.9 |
| SUM OTHER AROMATICS | 61.8 | 18.6 | 64.1 | 21.4 | 32.8 | 16.7 | 23.0 | 21.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 21.8 | 4.3 | 27.5 | 8.1 | 10.7 | 19.0 | 19.6 | 5.9 |
| SUM UNKNOWNS | 8.7 | 3.4 | 6.8 | 4.2 | 3.6 | 4.4 | 6.4 | 0.7 |
| SUM PARAFFINS | 449.9 | 113.8 | 478.5 | 191.8 | 231.4 | 362.5 | 399.4 | 127.1 |
| SUM OLEFINS | 138.4 | 22.5 | 131.9 | 46.7 | 93.8 | 78.8 | 105.3 | 42.5 |
| SUM AROMATICS | 296.6 | 75.8 | 236.6 | 91.8 | 161.4 | 144.2 | 160.5 | 80.7 |
| SUM HYDROCARBONS | 915.6 | 220.0 | 881.5 | 342.6 | 501.1 | 609.1 | 691.4 | 257.1 |

TABLE A-19f. Hydrocarbon concentration data for DALLAS, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 2502 85/09/16 | 2503RA0 85/09/16 | 2519 86/08/26 | 2557 86/08/28 | 2569 85/09/20 | 2606 86/09/02 | 2689 86/09/09 | 2712 86/09/10 |
| PARAFFINS | | | | | | | | |
| ETHANE | 47.5 | 47.9 | 40.8 | 9.6 | 40.8 | 28.9 | 41.0 | 13.9 |
| PROPANE | 37.1 | 36.9 | 34.7 | 7.2 | 39.3 | 20.0 | 34.4 | 16.3 |
| ISOBUTANE | 15.0 | 14.9 | 15.2 | 3.4 | 22.1 | 10.3 | 13.2 | 4.7 |
| n-BUTANE | 40.5 | 40.4 | 51.3 | 12.8 | 57.0 | 28.5 | 37.5 | 12.2 |
| ISOPENTANE | 49.1 | 49.1 | 70.8 | 19.6 | 72.8 | 43.5 | 48.3 | 9.6 |
| n-PENTANE | 26.7 | 27.0 | 33.6 | 8.6 | 36.6 | 20.8 | 23.9 | 5.3 |
| 2,2-DIMETHYLBUTANE | 1.2 | 1.3 | 1.8 | 0.3 | 1.7 | 1.0 | 1.4 | 0.3 |
| CYCLOPENTANE | 2.6 | 2.6 | 3.3 | 0.8 | 3.6 | 2.0 | 2.1 | * |
| 2,3-DIMETHYLBUTANE | 4.1 | 4.1 | 5.7 | 1.7 | 6.1 | 3.7 | 4.5 | 1.1 |
| 2-METHYLPENTANE | 16.3 | 16.2 | 21.0 | 8.1 | 23.5 | 13.4 | 15.2 | 4.5 |
| 3-METHYLPENTANE | 10.0 | 10.2 | 15.4 | 5.0 | 14.7 | 11.5 | 12.4 | 4.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.2 | 13.2 | 14.0 | 6.2 | 17.3 | 9.1 | 10.3 | 3.8 |
| METHYLCYCLOPENTANE | 6.8 | 6.8 | 8.5 | 3.3 | 10.0 | 5.3 | 6.2 | 1.9 |
| 2,4-DIMETHYLPENTANE | 2.1 | 2.1 | 2.9 | 0.8 | 3.1 | 2.0 | 2.4 | 0.5 |
| CYCLOHEXANE | 2.5 | 2.5 | 2.5 | 0.7 | 3.7 | 1.4 | 1.7 | * |
| 2-METHYLHEXANE | 11.3 | 11.6 | 11.4 | 3.3 | 14.4 | 8.5 | 10.3 | * |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | 5.3 |
| 3-METHYLHEXANE | 7.3 | 6.9 | 8.2 | 2.7 | 10.1 | 6.3 | 7.5 | 1.6 |
| 2,2,4-TRIMETHYLPENTANE | 7.3 | 7.2 | 11.3 | 3.1 | 11.3 | 8.4 | 8.5 | 2.0 |
| n-HEPTANE | 7.0 | 6.6 | 6.2 | 2.6 | 8.8 | 4.6 | 7.4 | 1.6 |
| METHYLCYCLOHEXANE | 4.0 | 3.9 | 4.5 | 1.3 | 5.4 | 3.1 | 3.4 | 1.2 |
| 2,5-DIMETHYLHEXANE | 1.8 | 1.8 | 2.9 | * | 2.8 | 0.5 | 2.2 | 0.2 |
| 2,4-DIMETHYLHEXANE | 1.9 | 1.9 | 2.9 | 0.8 | 2.9 | 1.7 | 2.1 | 0.5 |
| 2,3,4-TRIMETHYLPENTANE | 2.8 | 3.3 | 4.8 | 1.3 | 5.2 | 3.6 | 3.7 | 0.9 |
| 2-METHYLHEPTANE | 2.7 | 2.5 | 5.0 | 0.6 | 3.6 | 3.0 | 2.8 | 1.0 |
| 3-METHYLHEPTANE | 2.6 | 2.6 | 4.0 | 1.2 | 3.7 | 2.2 | 2.5 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 1.0 | 2.8 | 1.5 | 1.5 | 0.6 | 1.4 | 1.9 |
| n-OCTANE | 2.8 | 2.4 | 4.5 | 1.8 | 3.9 | 2.6 | 2.5 | 0.8 |
| 2,4-DIMETHYLHEPTANE | 0.6 | 0.6 | 0.8 | 0.4 | 1.4 | 0.8 | 0.4 | 0.4 |
| 4-METHYLOCTANE | 1.3 | 1.7 | 3.5 | 1.8 | 2.5 | 2.3 | 2.4 | 0.8 |
| 3-METHYLOCTANE | 1.2 | 1.3 | 2.1 | 1.3 | 1.8 | 1.4 | 1.4 | 0.7 |
| n-NONANE | 2.0 | 2.0 | 3.2 | 2.6 | 2.5 | 1.7 | 1.6 | 0.6 |
| 4-METHYLNONANE | * | * | * | 0.9 | 0.9 | * | * | * |
| n-DECANE | 2.7 | 2.9 | 4.2 | 3.4 | 3.4 | 2.7 | 2.6 | 1.8 |
| SUM OTHER PARAFFINS | 39.2 | 36.8 | 32.0 | 16.4 | 61.2 | 29.3 | 20.3 | 12.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLE NS | | | | | | | | |
| ETH ENE | 26.4 | 24.0 | 32.4 | 8.0 | 30.3 | 18.9 | 28.6 | 7.3 |
| PRO NE | 6.0 | 6.1 | 9.0 | 2.6 | 10.5 | 6.5 | 9.1 | 1.9 |
| 2-M HYLPROPYLENE,BUTENE-1 | 5.4 | 5.4 | 8.4 | 2.3 | 8.2 | 5.5 | 6.5 | 1.6 |
| 1,3 UTADIENE | 1.3 | 1.5 | 0.8 | 0.5 | 2.3 | 0.8 | 1.3 | * |
| t-2 UTENE | 2.5 | 2.4 | 3.0 | 0.8 | 3.8 | 1.9 | 2.6 | 0.3 |
| c-2 UTENE | 1.6 | 1.6 | 2.8 | 0.6 | 2.7 | 1.5 | 1.8 | 0.3 |
| 1-P TENE | 1.8 | 1.8 | 2.9 | 0.7 | 2.9 | 1.7 | 2.0 | * |
| 2-M HYL-1-BUTENE | 2.8 | 2.7 | 4.5 | 1.0 | 4.3 | 2.6 | 3.3 | * |
| ISO ENE | 1.0 | 1.0 | 3.3 | 1.0 | 2.1 | 1.1 | 2.6 | * |
| t-2 ENTENE | 3.2 | 3.2 | 4.7 | * | 5.5 | 3.0 | 3.4 | * |
| c-2 ENTENE | 4.4 | 4.1 | 5.2 | * | 8.2 | 10.0 | 4.6 | * |
| 2-M HYL-1-PENTENE,1-HEXENE | 1.5 | 1.5 | 0.9 | 0.1 | 2.2 | 0.6 | 0.6 | * |
| 2-M HYL-2-PENTENE | 1.4 | 1.4 | 2.3 | 0.4 | 2.8 | 1.5 | 1.7 | 0.2 |
| 2,2 -TRIMETHYL-1-BUTENE | 1.2 | 1.2 | 1.7 | 1.5 | 1.5 | 1.7 | 1.3 | 0.7 |
| a-P ENE | * | 0.3 | 1.2 | * | 1.1 | 1.6 | 1.7 | * |
| SUM THER OLEFINS | 26.6 | 18.0 | 25.2 | 3.2 | 31.2 | 21.3 | 20.6 | 5.8 |
| ARO TICS | | | | | | | | |
| BEN NE | 13.9 | 13.8 | 18.8 | 5.0 | 19.5 | 13.2 | 18.2 | 4.1 |
| TOL NE | 35.2 | 35.3 | 58.8 | 28.8 | 49.2 | 53.2 | 41.8 | 16.4 |
| ETH BENZENE | 6.1 | 6.1 | 10.8 | 6.7 | 8.9 | 7.0 | 7.2 | 2.3 |
| m&p YLENE | 18.7 | 19.2 | 31.4 | 22.5 | 27.6 | 21.6 | 22.4 | 7.6 |
| o-X ENE | 8.1 | 7.0 | 11.2 | 9.0 | 9.4 | 8.2 | 8.8 | 3.4 |
| n-P PYLBENZENE | * | * | 3.1 | 1.8 | 2.8 | 1.7 | 1.9 | 0.5 |
| m-E YLTOLUENE | 5.5 | 5.5 | 9.5 | 4.8 | 8.0 | 6.9 | 7.1 | 2.3 |
| p-E YLTOLUENE | 2.8 | 2.9 | 5.1 | 2.8 | 4.2 | 3.5 | 3.5 | 1.1 |
| 1,3 -TRIMETHYLBENZENE | 3.3 | 3.3 | 5.8 | 2.4 | 4.0 | 4.0 | 4.2 | 1.5 |
| o-E YLTOLUENE | 2.6 | 2.7 | 4.8 | 3.0 | 3.8 | 3.4 | 3.6 | 1.4 |
| 1,2 -TRIMETHYLBENZENE | 11.6 | 10.9 | 19.5 | 10.9 | 14.4 | 15.0 | 14.8 | 7.2 |
| n-D ANE | 1.8 | 1.9 | 3.8 | 1.4 | 2.7 | 3.0 | 2.1 | 0.8 |
| 1,4 IETHYLBENZENE | 2.1 | 2.0 | 4.5 | 1.4 | 3.1 | 2.6 | 2.7 | 0.8 |
| 1,2 IMETHYL-3-ETHYLBENZENE | 1.9 | 1.7 | 4.7 | 4.5 | 2.6 | 4.4 | 4.9 | 3.9 |
| SUM THER AROMATICS | 20.3 | 20.4 | 33.2 | 23.3 | 21.4 | 37.7 | 36.8 | 17.2 |
| SUM RY | | | | | | | | |
| ACE LENE | 12.6 | 14.6 | 18.6 | 5.8 | 39.1 | 16.6 | 85.7 | 4.9 |
| SUM NKNOWNS | 1.9 | 1.0 | 0.3 | 53.3 | 1.1 | 2.1 | 1.0 | 3.8 |
| SUM ARAFFINS | 375.5 | 373.7 | 437.4 | 136.7 | 501.4 | 286.3 | 338.9 | 114.7 |
| SUM LEFINS | 87.7 | 76.8 | 108.9 | 23.3 | 120.2 | 81.0 | 92.5 | 18.4 |
| SUM ROMATICS | 134.5 | 133.0 | 225.6 | 128.9 | 182.3 | 186.0 | 180.4 | 71.2 |
| SUM YDROCARBONS | 612.3 | 599.3 | 791.0 | 348.2 | 844.2 | 572.5 | 698.7 | 213.1 |

## TABLE A-19g. Hydrocarbon concentration data for DALLAS, TX

| Co ound | ID Number and Sample Date<br>2799<br>86/09/15 | <br>2848<br>86/09/17 |
|---|---|---|
| PA AFFINS | | |
| ET ANE | 42.0 | 37.7 |
| PR PANE | 43.9 | 42.5 |
| IS BUTANE | 22.1 | 17.8 |
| n- UTANE | 50.9 | 41.6 |
| IS PENTANE | 69.8 | 53.1 |
| n- ENTANE | 32.9 | 26.5 |
| 2, -DIMETHYLBUTANE | 2.0 | 1.4 |
| CY LOPENTANE | 3.1 | 2.6 |
| 2, -DIMETHYLBUTANE | 6.4 | 4.9 |
| 2- ETHYLPENTANE | 21.6 | 16.6 |
| 3- ETHYLPENTANE | 15.1 | 12.2 |
| n- EXANE,2-ETHYL-1-BUTENE | 14.3 | 11.3 |
| ME HYLCYCLOPENTANE | 8.5 | 6.8 |
| 2, -DIMETHYLPENTANE | 3.1 | 2.4 |
| CY LOHEXANE | 2.8 | 2.3 |
| 2- ETHYLHEXANE | 11.8 | 9.4 |
| 2, -DIMETHYLPENTANE | * | * |
| 3- ETHYLHEXANE | 9.1 | 7.1 |
| 2, ,4-TRIMETHYLPENTANE | 12.3 | 8.7 |
| n- EPTANE | 7.5 | 6.2 |
| ME HYLCYCLOHEXANE | 4.6 | 3.9 |
| 2, -DIMETHYLHEXANE | 3.4 | 2.7 |
| 2, -DIMETHYLHEXANE | 3.2 | 2.3 |
| 2, ,4-TRIMETHYLPENTANE | 5.3 | 3.5 |
| 2- ETHYLHEPTANE | 5.7 | 4.3 |
| 3- ETHYLHEPTANE | 4.0 | 3.0 |
| 2, ,5-TRIMETHYLHEXANE | 3.2 | 2.3 |
| n- CTANE | 4.2 | 2.9 |
| 2, -DIMETHYLHEPTANE | 1.1 | 0.6 |
| 4- ETHYLOCTANE | 3.3 | 2.7 |
| 3- ETHYLOCTANE | 2.0 | 1.4 |
| n- ONANE | 2.1 | 1.8 |
| 4- ETHYLNONANE | * | * |
| n- ECANE | 3.3 | 2.8 |
| SU OTHER PARAFFINS | 29.6 | 24.3 |

OLEFINS

| | | |
|---|---|---|
| ETHYLENE | 39.3 | 42.3 |
| PROPENE | 9.9 | 8.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 7.8 | 6.3 |
| 1,3-BUTADIENE | 1.4 | 1.3 |
| t-2-BUTENE | 3.1 | 2.5 |
| c-2-BUTENE | 2.4 | 1.8 |
| 1-PENTENE | 2.8 | 2.0 |
| 2-METHYL-1-BUTENE | 4.6 | 3.0 |
| ISOPRENE | 2.4 | 2.0 |
| t-2-PENTENE | 4.7 | 3.4 |
| c-2-PENTENE | 6.1 | 4.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.1 | 0.8 |
| 2-METHYL-2-PENTENE | 2.2 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.9 | 1.4 |
| a-PINENE | 2.3 | 2.0 |
| SUM OTHER OLEFINS | 26.2 | 17.9 |

AROMATICS

| | | |
|---|---|---|
| BENZENE | 20.4 | 16.6 |
| TOLUENE | 63.8 | 46.2 |
| ETHYLBENZENE | 10.4 | 7.8 |
| m&p-XYLENE | 32.2 | 24.5 |
| o-XYLENE | 12.8 | 10.8 |
| n-PROPYLBENZENE | 3.2 | 2.8 |
| m-ETHYLTOLUENE | 9.3 | 7.7 |
| p-ETHYLTOLUENE | 4.8 | 4.0 |
| 1,3,5-TRIMETHYLBENZENE | 5.2 | 4.5 |
| o-ETHYLTOLUENE | 4.5 | 3.7 |
| 1,2,4-TRIMETHYLBENZENE | 19.4 | 16.4 |
| n-DECANE | 3.0 | 2.3 |
| 1,4-DIETHYLBENZENE | 4.6 | 3.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.4 | 3.1 |
| SUM OTHER AROMATICS | 34.5 | 28.5 |

SUMMARY

| | | |
|---|---|---|
| ACETYLENE | 20.8 | 12.5 |
| SUM UNKNOWNS | 0.7 | 0.3 |
| SUM PARAFFINS | 455.6 | 371.0 |
| SUM OLEFINS | 119.0 | 101.9 |
| SUM AROMATICS | 232.2 | 183.1 |
| SUM HYDROCARBONS | 828.6 | 668.9 |

TABLE A-20a. Hydrocarbon concentration data for EL PASO, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1044<br>85/06/05 | 1054<br>85/06/07 | 1142<br>85/06/13 | 1171<br>85/06/17 | 1186<br>85/06/18 | 1321<br>85/06/26 | 1361<br>84/07/20 | 1377<br>85/07/01 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 15.9 | 85.6 | 30.6 | 24.1 | 15.5 | 9.3 | 7.5 | 29.2 |
| PROPANE | 23.7 | 132.1 | 36.8 | 36.6 | 10.5 | 5.7 | 5.9 | 104.2 |
| ISOBUTANE | 7.3 | 95.3 | 20.1 | 39.6 | 10.4 | 5.6 | 3.3 | 18.8 |
| n-BUTANE | 18.5 | 121.9 | 31.1 | 53.3 | 17.4 | 13.0 | 7.5 | 43.8 |
| ISOPENTANE | 23.6 | 153.7 | 30.9 | 69.3 | 6.3 | 17.8 | 13.4 | 46.2 |
| n-PENTANE | 15.8 | 94.1 | 20.4 | 44.6 | 16.6 | 12.0 | 10.1 | 32.8 |
| 2,2-DIMETHYLBUTANE | * | 3.4 | 0.7 | 1.5 | 0.6 | 0.4 | 0.4 | 1.1 |
| CYCLOPENTANE | 1.4 | 8.5 | 1.8 | 4.1 | 1.5 | 1.1 | 1.0 | 2.6 |
| 2,3-DIMETHYLBUTANE | 2.7 | 14.1 | 2.7 | 6.3 | 2.5 | 1.7 | 1.6 | 4.3 |
| 2-METHYLPENTANE | 8.9 | 51.2 | 10.4 | 23.6 | 9.2 | 6.6 | 6.5 | 16.5 |
| 3-METHYLPENTANE | 6.8 | 35.4 | 9.0 | 17.1 | 7.3 | 4.2 | 6.0 | 10.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 9.3 | 43.3 | 9.1 | 19.2 | 7.7 | 5.5 | 5.8 | 15.0 |
| METHYLCYCLOPENTANE | 4.8 | 25.5 | 5.5 | 12.1 | 4.9 | 3.4 | 3.4 | 8.6 |
| 2,4-DIMETHYLPENTANE | 2.6 | 11.8 | 2.8 | 5.5 | 2.2 | 1.5 | 1.1 | 3.4 |
| CYCLOHEXANE | 2.1 | 10.7 | 2.5 | 4.9 | 2.0 | 1.4 | 1.2 | 3.5 |
| 2-METHYLHEXANE | 3.3 | 18.4 | 3.4 | 8.4 | 0.9 | 3.3 | 3.6 | 6.2 |
| 2,3-DIMETHYLPENTANE | 3.2 | 16.2 | 2.9 | 7.2 | 0.8 | 2.2 | * | 4.2 |
| 3-METHYLHEXANE | 7.0 | 21.2 | 2.8 | 10.7 | 6.1 | 2.6 | 2.3 | 7.2 |
| 2,2,4-TRIMETHYLPENTANE | 3.6 | 19.3 | 2.8 | 9.1 | 3.4 | 2.2 | 1.4 | 4.7 |
| n-HEPTANE | 3.8 | 21.0 | 4.1 | 8.7 | 2.8 | 2.1 | 2.4 | 7.8 |
| METHYLCYCLOHEXANE | 2.9 | 12.3 | 2.8 | 4.7 | 1.5 | 1.3 | 1.2 | 4.1 |
| 2,5-DIMETHYLHEXANE | 1.5 | 6.2 | 1.7 | 2.6 | 0.9 | 0.7 | 0.6 | 2.1 |
| 2,4-DIMETHYLHEXANE | 1.5 | 6.2 | 1.5 | 2.5 | 1.1 | 0.6 | 0.8 | 2.0 |
| 2,3,4-TRIMETHYLPENTANE | 1.3 | 5.6 | 1.5 | 2.7 | 1.0 | 0.9 | 0.4 | 2.0 |
| 2-METHYLHEPTANE | 1.7 | 9.0 | 2.8 | 3.9 | 1.1 | 1.1 | 0.8 | 3.7 |
| 3-METHYLHEPTANE | 1.7 | 8.7 | 1.8 | 4.0 | 1.6 | 1.1 | 1.2 | 3.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.7 | 7.4 | 1.7 | 3.7 | 1.6 | 0.9 | 0.2 | 2.1 |
| n-OCTANE | 1.8 | 11.8 | 2.5 | 6.9 | 1.1 | 1.1 | 1.1 | 5.2 |
| 2,4-DIMETHYLHEPTANE | * | 1.0 | * | 0.3 | 0.0 | * | * | * |
| 4-METHYLOCTANE | * | 6.2 | * | 2.5 | * | 0.9 | * | 3.0 |
| 3-METHYLOCTANE | 0.9 | 5.3 | 1.0 | 2.0 | 0.1 | 0.9 | 0.6 | 2.5 |
| n-NONANE | * | 16.5 | 10.0 | 3.5 | 1.5 | 1.3 | 1.7 | 4.2 |
| 4-METHYLNONANE | * | * | * | * | * | * | 2.6 | * |
| n-DECANE | 5.7 | 11.2 | 2.3 | 4.7 | 1.5 | 1.4 | 1.3 | 4.3 |
| SUM OTHER PARAFFINS | 314.3 | 123.6 | 59.4 | 65.6 | 39.3 | 25.9 | 37.2 | 42.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 14.4 | 53.9 | 14.6 | 27.3 | 13.8 | 11.4 | 8.7 | 25.5 |
| PROPENE | 4.8 | 34.2 | 6.5 | 11.7 | 5.0 | 3.7 | 2.9 | 7.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.8 | 33.7 | 6.1 | 11.4 | 4.8 | 3.5 | 4.1 | 7.1 |
| 1,3-BUTADIENE | 1.0 | 4.6 | 1.0 | 2.0 | 0.9 | 0.6 | 0.6 | 1.1 |
| t-2-BUTENE | 1.6 | 13.3 | 1.8 | 3.7 | 1.7 | 1.1 | 0.7 | 2.9 |
| c-2-BUTENE | 1.1 | 10.5 | 1.2 | 2.8 | 1.1 | 0.8 | 0.5 | 2.0 |
| 1-PENTENE | * | 4.8 | 10.4 | 1.6 | * | 0.5 | 0.3 | 1.2 |
| 2-METHYL-1-BUTENE | 1.1 | 8.5 | 1.0 | 2.9 | 1.0 | 0.8 | 0.7 | 1.7 |
| ISOPRENE | 0.5 | 2.1 | 0.5 | 1.1 | 0.8 | 0.4 | 0.4 | 1.0 |
| t-2-PENTENE | 1.4 | 9.3 | 1.2 | 2.9 | 1.2 | 1.0 | 0.8 | 2.3 |
| c-2-PENTENE | 1.3 | 8.8 | 1.1 | 2.2 | 1.4 | * | 1.8 | 2.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.5 | 2.2 | 0.6 | 1.1 | 0.0 | * | * | 0.5 |
| 2-METHYL-2-PENTENE | 0.7 | 3.5 | 0.8 | 1.0 | 0.7 | 0.4 | 0.3 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 4.0 | 1.2 | 1.7 | 0.5 | 0.6 | 0.5 | 4.0 |
| a-PINENE | 4.5 | 5.5 | 8.6 | 9.3 | 6.1 | 1.3 | * | 5.2 |
| SUM OTHER OLEFINS | 85.7 | 86.8 | 51.8 | 50.2 | 34.9 | 23.8 | 64.7 | 27.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 9.4 | 39.3 | 10.0 | 21.4 | 8.9 | 6.8 | 5.9 | 16.0 |
| TOLUENE | 20.6 | 89.2 | 22.7 | 47.3 | 21.2 | 15.3 | 16.7 | 38.2 |
| ETHYLBENZENE | 3.9 | 17.2 | 4.4 | 9.1 | 4.2 | 2.8 | 3.1 | 7.6 |
| m&p-XYLENE | 12.7 | 49.7 | 13.9 | 26.6 | 12.5 | 9.4 | 8.7 | 24.3 |
| o-XYLENE | 6.0 | 19.4 | 6.1 | 9.8 | 3.5 | 3.2 | 3.2 | 8.3 |
| n-PROPYLBENZENE | 1.4 | 5.1 | 1.5 | 2.7 | 1.5 | 0.5 | 1.0 | 2.1 |
| m-ETHYLTOLUENE | 5.5 | 12.5 | 4.5 | 8.0 | 1.5 | 2.4 | 2.7 | 5.6 |
| p-ETHYLTOLUENE | 3.2 | 7.5 | 2.2 | 4.3 | 0.8 | 1.2 | 1.8 | 2.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.3 | 7.8 | 1.9 | 3.5 | 1.4 | 1.5 | 1.3 | 2.9 |
| o-ETHYLTOLUENE | 3.2 | 8.1 | 2.9 | 3.7 | 2.6 | 1.2 | 1.5 | 3.2 |
| 1,2,4-TRIMETHYLBENZENE | 8.2 | 19.8 | 4.8 | 10.4 | 4.2 | 5.2 | 4.5 | 9.7 |
| n-DECANE | * | 25.7 | * | * | 165.1 | 0.6 | 3.1 | 3.3 |
| 1,4-DIETHYLBENZENE | 2.1 | 6.1 | 2.0 | 4.4 | 2.3 | 1.5 | 1.8 | 3.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.1 | 6.6 | 1.4 | 3.4 | 0.8 | * | 1.8 | 2.7 |
| SUM OTHER AROMATICS | 237.4 | 96.1 | 202.5 | 378.4 | 26.1 | 25.4 | 35.5 | 31.4 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 14.4 | 56.0 | 15.0 | 27.2 | 13.4 | 7.9 | 7.4 | 26.2 |
| SUM UNKNOWNS | 9.2 | 13.9 | 4.4 | 4.0 | 488.0 | 5.8 | 36.9 | 2.9 |
| SUM PARAFFINS | 500.6 | 1215.0 | 321.0 | 517.0 | 182.3 | 140.9 | 135.2 | 453.9 |
| SUM OLEFINS | 124.7 | 286.5 | 109.1 | 133.5 | 74.8 | 50.2 | 87.8 | 93.2 |
| SUM AROMATICS | 319.4 | 410.8 | 281.5 | 533.5 | 257.0 | 77.6 | 93.1 | 161.6 |
| SUM HYDROCARBONS | 969.2 | 1982.3 | 731.4 | 1215.4 | 1015.8 | 283.2 | 360.6 | 738.0 |

TABLE A-20b. Hydrocarbon concentration data for EL PASO, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1452 85/07/05 | 1491 84/07/30 | 1519 86/07/02 | 1587 85/07/16 | 1695 86/07/15 | 1731 84/08/13 | 1780 85/07/26 | 1877 84/08/22 |
| PARAFFINS | | | | | | | | |
| ETHANE | 47.7 | 30.3 | 15.0 | 67.9 | 11.3 | 28.5 | 14.1 | 24.3 |
| PROPANE | 38.9 | 34.4 | 19.9 | 100.2 | 16.5 | 29.8 | 11.7 | 22.5 |
| ISOBUTANE | 22.3 | 21.3 | 9.6 | 55.3 | 5.5 | 13.5 | 6.9 | 20.8 |
| n-BUTANE | 47.1 | 31.6 | 14.3 | 99.3 | 11.6 | 26.8 | 13.9 | 32.1 |
| ISOPENTANE | 66.4 | 50.9 | 20.4 | 112.7 | 21.3 | 33.1 | 21.1 | 48.6 |
| n-PENTANE | 41.6 | 33.6 | 12.6 | 72.3 | 13.8 | 24.0 | 11.6 | 34.8 |
| 2,2-DIMETHYLBUTANE | 1.6 | 1.4 | 0.4 | 2.7 | 0.4 | 1.0 | 0.3 | 1.3 |
| CYCLOPENTANE | 3.6 | 3.1 | 1.1 | 6.3 | 1.4 | 2.3 | 1.1 | 3.3 |
| 2,3-DIMETHYLBUTANE | 6.7 | 4.7 | 1.9 | 10.8 | 2.3 | 2.8 | 2.4 | 5.1 |
| 2-METHYLPENTANE | 22.7 | 20.2 | 7.7 | 37.9 | 8.4 | 13.4 | 7.9 | 21.8 |
| 3-METHYLPENTANE | 13.9 | 18.6 | 6.2 | 27.1 | 6.7 | 9.6 | 5.6 | 17.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 19.2 | 18.5 | 6.1 | 33.9 | 7.0 | 12.6 | 6.4 | 18.9 |
| METHYLCYCLOPENTANE | 11.8 | 10.6 | 3.9 | 19.8 | 4.2 | 8.2 | 4.3 | 12.5 |
| 2,4-DIMETHYLPENTANE | 5.7 | 3.1 | 1.7 | 9.3 | 1.8 | 2.1 | 2.6 | 3.2 |
| CYCLOHEXANE | 4.8 | 4.0 | 1.3 | 8.5 | 1.4 | 3.4 | 1.6 | 5.1 |
| 2-METHYLHEXANE | 9.8 | 13.9 | 4.9 | 15.7 | 6.2 | 8.2 | 4.7 | 13.3 |
| 2,3-DIMETHYLPENTANE | 7.8 | * | * | 11.9 | * | * | 3.3 | * |
| 3-METHYLHEXANE | 9.7 | 12.1 | 3.3 | 21.1 | 4.2 | 6.0 | 4.1 | 12.2 |
| 2,2,4-TRIMETHYLPENTANE | 8.1 | 3.8 | 3.2 | 13.5 | 3.9 | 2.7 | 4.5 | 4.4 |
| n-HEPTANE | 9.0 | 12.2 | 3.0 | 20.3 | 4.7 | 5.6 | 3.0 | 9.5 |
| METHYLCYCLOHEXANE | 5.5 | 6.7 | 1.8 | 10.2 | 2.0 | 3.5 | 1.9 | 6.8 |
| 2,5-DIMETHYLHEXANE | 3.1 | 2.3 | 0.7 | 5.2 | 0.8 | 1.3 | 1.5 | 2.2 |
| 2,4-DIMETHYLHEXANE | 3.1 | 2.3 | 1.0 | 5.2 | 1.2 | 1.4 | 1.4 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 3.0 | 2.4 | 1.1 | 4.5 | 1.3 | 1.0 | 1.8 | 1.5 |
| 2-METHYLHEPTANE | 4.5 | 6.5 | 2.1 | 8.4 | 2.0 | 3.6 | 1.0 | 5.0 |
| 3-METHYLHEPTANE | 4.9 | 4.8 | 1.6 | 8.7 | 2.0 | 2.9 | 2.2 | 5.1 |
| 2,2,5-TRIMETHYLHEXANE | 3.6 | 2.4 | 1.7 | 5.5 | 2.2 | 0.6 | 1.6 | 1.1 |
| n-OCTANE | 5.6 | 8.7 | 1.9 | 10.9 | 2.9 | 2.8 | 1.5 | 5.5 |
| 2,4-DIMETHYLHEPTANE | 0.4 | * | 0.5 | 0.8 | 0.4 | * | * | * |
| 4-METHYLOCTANE | 3.3 | 4.7 | 1.7 | 6.2 | 2.0 | 1.8 | 1.4 | 4.1 |
| 3-METHYLOCTANE | 2.9 | 2.3 | 1.3 | 5.6 | 1.2 | 1.3 | 1.6 | 2.3 |
| n-NONANE | 4.2 | 5.8 | 1.7 | 2.1 | 2.2 | 2.0 | 1.5 | 3.9 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.7 | 4.2 | 2.0 | 7.7 | 2.4 | 2.5 | 1.4 | 5.3 |
| SUM OTHER PARAFFINS | 55.1 | 66.4 | 11.2 | 89.8 | 14.3 | 36.4 | 15.4 | 57.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 36.0 | 34.2 | 13.7 | 48.4 | 12.3 | 21.2 | 18.1 | 33.7 |
| PROPENE | 11.5 | 11.8 | 4.8 | 22.4 | 6.2 | 7.1 | 5.6 | 10.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.5 | 10.3 | 3.6 | 18.4 | 3.8 | 6.4 | 4.5 | 10.4 |
| 1,3-BUTADIENE | 2.5 | 2.5 | 0.5 | 4.6 | 0.9 | 1.5 | 1.1 | 2.3 |
| t-2-BUTENE | 4.0 | 3.6 | 1.1 | 6.8 | 1.4 | 2.6 | 1.4 | 2.9 |
| c-2-BUTENE | 2.7 | 2.7 | 0.9 | 5.0 | 1.1 | 1.8 | 1.0 | 3.1 |
| 1-PENTENE | 1.3 | 3.5 | 0.6 | 3.6 | 0.7 | 1.8 | 0.7 | 2.0 |
| 2-METHYL-1-BUTENE | 2.8 | 2.8 | 0.9 | 5.0 | 1.1 | 2.7 | 1.3 | 4.0 |
| ISOPRENE | 1.3 | 1.1 | * | 2.1 | 0.1 | 0.6 | 0.8 | 1.2 |
| t-2-PENTENE | 3.3 | 2.7 | 1.2 | 5.1 | 1.4 | 2.2 | 1.3 | 3.6 |
| c-2-PENTENE | 3.9 | 3.5 | 1.3 | 6.5 | * | 2.6 | 2.1 | 5.2 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.8 | 1.0 | 0.2 | 1.5 | 1.0 | 0.4 | 0.7 | 0.2 |
| 2-METHYL-2-PENTENE | 1.3 | 1.1 | 0.1 | 2.2 | 0.5 | 0.9 | 0.6 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.2 | 2.5 | 1.3 | 2.4 | 1.9 | 0.7 | 0.8 | 1.5 |
| a-PINENE | 2.4 | 1.1 | * | 0.5 | * | 0.9 | 2.4 | 1.0 |
| SUM OTHER OLEFINS | 40.4 | 55.8 | 3.2 | 61.4 | 6.6 | 54.9 | 24.4 | 49.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 20.7 | 19.0 | 6.9 | 33.7 | 8.1 | 13.0 | 9.7 | 18.6 |
| TOLUENE | 48.8 | 48.4 | 16.8 | 81.6 | 19.5 | 31.5 | 26.4 | 49.5 |
| ETHYLBENZENE | 9.5 | 9.5 | 3.0 | 15.4 | 4.3 | 6.7 | 4.4 | 9.7 |
| m&p-XYLENE | 30.1 | 27.7 | 10.9 | 48.0 | 12.9 | 20.6 | 15.8 | 28.4 |
| o-XYLENE | 10.6 | 9.9 | 3.9 | 17.1 | 4.9 | 6.7 | 6.9 | 9.8 |
| n-PROPYLBENZENE | 2.6 | 3.2 | 0.7 | 4.6 | 1.0 | 1.7 | 1.0 | 2.8 |
| m-ETHYLTOLUENE | 7.7 | 7.1 | 2.8 | 10.0 | 3.4 | 5.0 | 3.9 | 7.7 |
| p-ETHYLTOLUENE | 4.6 | 4.1 | 1.5 | 3.9 | 1.9 | 3.1 | 2.1 | 4.5 |
| 1,3,5-TRIMETHYLBENZENE | 4.4 | 4.1 | 1.9 | 5.8 | 2.4 | 2.9 | 3.7 | 4.5 |
| o-ETHYLTOLUENE | 4.3 | 3.8 | 1.6 | 6.9 | 2.0 | 2.7 | 2.4 | 4.1 |
| 1,2,4-TRIMETHYLBENZENE | 13.5 | 11.4 | 9.5 | 19.9 | 9.9 | 8.3 | 6.8 | 12.4 |
| n-DECANE | 22.7 | 5.3 | 1.0 | 11.0 | 1.5 | 3.5 | 1.2 | 3.6 |
| 1,4-DIETHYLBENZENE | 4.5 | 4.2 | 1.1 | 7.4 | 1.8 | 3.0 | 2.1 | 4.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.2 | 3.4 | 1.3 | 4.6 | 1.6 | 2.3 | 1.1 | 3.6 |
| SUM OTHER AROMATICS | 43.5 | 62.2 | 12.9 | 72.3 | 16.8 | 32.7 | 17.6 | 53.0 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 26.0 | 26.3 | 7.6 | 57.5 | 12.7 | 16.6 | 20.9 | 22.6 |
| SUM UNKNOWNS | 11.8 | 0.2 | 0.9 | 69.7 | 1.2 | 9.6 | 3.3 | * |
| SUM PARAFFINS | 504.8 | 449.3 | 168.4 | 918.5 | 171.2 | 296.1 | 166.8 | 415.0 |
| SUM OLEFINS | 125.3 | 140.7 | 33.9 | 196.5 | 39.6 | 109.0 | 67.4 | 133.4 |
| SUM AROMATICS | 231.2 | 224.0 | 76.5 | 342.7 | 92.7 | 144.4 | 105.6 | 217.3 |
| SUM HYDROCARBONS | 899.6 | 840.8 | 287.4 | 1585.2 | 317.6 | 575.8 | 364.1 | 788.4 |

TABLE A-20c. Hydrocarbon concentration data for EL PASO, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1909<br>85/08/05 | 1925<br>86/07/25 | 1955<br>84/08/27 | 2059<br>85/08/14 | 2187<br>85/08/22 | 2201<br>86/08/11 | 2223<br>84/09/12 | 2246<br>85/08/27 |
| PARAFFINS | | | | | | | | |
| ETHANE | 12.4 | 47.4 | 10.7 | 20.7 | 29.8 | 25.0 | 25.3 | 60.2 |
| PROPANE | 11.9 | 125.9 | 11.4 | 38.7 | 50.2 | 41.2 | 52.7 | 131.1 |
| ISOBUTANE | 8.9 | 35.2 | 8.6 | 10.2 | 18.2 | 13.6 | 52.2 | 34.6 |
| n-BUTANE | 18.0 | 74.0 | 17.0 | 25.8 | 40.7 | 25.9 | 85.9 | 100.5 |
| ISOPENTANE | 23.0 | 102.6 | 29.2 | 25.4 | 53.9 | 34.2 | 84.8 | 82.1 |
| n-PENTANE | 13.0 | 63.5 | 20.0 | 16.8 | 35.8 | 19.4 | 50.4 | 53.6 |
| 2,2-DIMETHYLBUTANE | 0.4 | 2.6 | 0.7 | 0.7 | 1.4 | 0.7 | 1.6 | 2.2 |
| CYCLOPENTANE | 1.2 | 6.7 | 2.0 | 1.6 | 3.6 | 1.8 | 4.4 | 5.1 |
| 2,3-DIMETHYLBUTANE | 2.4 | 11.3 | 2.5 | 3.1 | 5.5 | 3.2 | 6.4 | 8.1 |
| 2-METHYLPENTANE | 8.1 | 40.2 | 11.3 | 11.5 | 21.9 | 11.5 | 28.9 | 31.5 |
| 3-METHYLPENTANE | 6.1 | 27.4 | 9.8 | 7.5 | 13.8 | 8.7 | 25.1 | 20.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.2 | 35.9 | 10.7 | 10.1 | 18.7 | 7.7 | 21.2 | 28.4 |
| METHYLCYCLOPENTANE | 4.3 | 21.3 | 7.0 | 6.6 | 12.2 | 5.8 | 14.3 | 17.4 |
| 2,4-DIMETHYLPENTANE | 2.3 | 9.1 | 1.7 | 3.2 | 4.8 | 2.5 | 3.8 | 6.9 |
| CYCLOHEXANE | 1.7 | 8.1 | 2.6 | 2.4 | 5.0 | 2.1 | 5.5 | 6.7 |
| 2-METHYLHEXANE | 5.5 | 32.5 | 5.6 | 13.7 | 12.4 | 7.0 | 9.9 | 15.8 |
| 2,3-DIMETHYLPENTANE | * | * | 2.9 | * | 6.7 | * | 6.5 | 9.7 |
| 3-METHYLHEXANE | 3.7 | 20.0 | 7.8 | 6.4 | 10.1 | 4.7 | 13.3 | 14.6 |
| 2,2,4-TRIMETHYLPENTANE | 3.9 | 19.1 | 4.5 | 5.5 | 8.4 | 5.5 | 5.8 | 11.0 |
| n-HEPTANE | 2.6 | 18.6 | 5.0 | 6.0 | 10.5 | 5.0 | 9.6 | 14.9 |
| METHYLCYCLOHEXANE | 1.6 | 9.6 | 3.0 | 2.8 | 5.1 | 2.7 | 6.2 | 7.2 |
| 2,5-DIMETHYLHEXANE | 1.1 | 5.8 | 1.3 | 2.1 | 2.9 | 1.5 | 3.0 | 4.0 |
| 2,4-DIMETHYLHEXANE | 1.1 | 5.9 | 1.4 | 2.0 | 2.9 | 1.5 | 3.0 | 3.9 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 7.4 | 1.0 | 2.4 | 3.1 | 1.9 | 1.8 | 4.3 |
| 2-METHYLHEPTANE | 1.0 | 9.2 | 1.8 | 3.0 | 4.9 | 1.1 | 4.8 | 7.3 |
| 3-METHYLHEPTANE | 2.0 | 10.4 | 2.8 | 3.4 | 5.6 | 2.1 | 5.0 | 8.2 |
| 2,2,5-TRIMETHYLHEXANE | 1.1 | 7.4 | 0.5 | 1.7 | 2.4 | 2.0 | 2.4 | 3.7 |
| n-OCTANE | 1.4 | 10.4 | 3.5 | 4.0 | 5.8 | 2.0 | 5.4 | 8.3 |
| 2,4-DIMETHYLHEPTANE | * | 5.9 | * | 1.2 | * | 0.7 | 0.4 | * |
| 4-METHYLOCTANE | 1.2 | 7.0 | 2.0 | 2.2 | 3.8 | 2.0 | 4.6 | 4.9 |
| 3-METHYLOCTANE | 1.2 | 6.2 | 1.3 | 1.8 | 3.0 | 1.4 | 2.3 | 3.4 |
| n-NONANE | 1.4 | 8.3 | 1.6 | 2.4 | 4.7 | 1.6 | 3.4 | 6.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.8 | 10.9 | 2.1 | 2.2 | 4.5 | 1.8 | 3.7 | 5.9 |
| SUM OTHER PARAFFINS | 18.3 | 81.2 | 36.7 | 22.9 | 43.5 | 14.2 | 50.3 | 56.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 13.2 | 61.5 | 25.2 | 20.3 | 33.3 | 15.8 | 28.6 | 44.6 |
| PROPENE | 3.7 | 27.1 | 7.7 | 6.6 | 11.0 | 8.7 | 11.5 | 15.8 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.4 | 15.5 | 5.3 | 4.7 | 8.3 | 4.9 | 7.9 | 13.9 |
| 1,3-BUTADIENE | 0.7 | 1.5 | 1.8 | 1.4 | 1.5 | 0.1 | 1.1 | 3.1 |
| t-2-BUTENE | 1.3 | 3.7 | 2.3 | 1.8 | 3.1 | 1.4 | 3.3 | 5.6 |
| c-2-BUTENE | 1.0 | 3.4 | 1.6 | 1.3 | 2.5 | 1.5 | 3.5 | 3.9 |
| 1-PENTENE | 0.7 | 3.1 | 1.0 | 0.9 | 1.9 | 0.6 | 3.7 | 2.8 |
| 2-METHYL-1-BUTENE | 1.5 | 3.2 | 1.7 | 1.7 | 2.6 | 0.9 | 3.8 | 5.1 |
| ISOPRENE | 1.0 | 1.4 | 0.9 | 0.9 | 1.3 | * | 0.7 | 1.5 |
| t-2-PENTENE | 1.4 | 4.2 | 2.1 | 1.9 | 3.7 | 0.8 | 2.6 | 5.1 |
| c-2-PENTENE | 2.0 | 4.9 | 2.3 | 2.6 | 5.3 | 0.2 | 1.9 | 6.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.2 | 3.2 | * | * | 0.3 | 0.3 | 1.3 | 1.2 |
| 2-METHYL-2-PENTENE | 0.6 | 1.8 | 0.9 | 1.0 | 1.6 | 0.5 | 0.6 | 2.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 | 2.9 | 0.8 | 1.1 | 1.9 | 0.7 | 1.6 | 3.2 |
| a-PINENE | 1.2 | 1.1 | 2.3 | 1.1 | 2.1 | * | 0.8 | 1.6 |
| SUM OTHER OLEFINS | 18.5 | 30.8 | 50.8 | 20.5 | 24.4 | 4.7 | 57.3 | 34.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 8.1 | 41.5 | 13.4 | 12.1 | 23.0 | 9.6 | 21.9 | 30.6 |
| TOLUENE | 19.9 | 92.8 | 31.5 | 30.6 | 56.0 | 25.4 | 51.5 | 79.2 |
| ETHYLBENZENE | 3.6 | 19.7 | 6.1 | 6.1 | 11.5 | 4.6 | 11.3 | 14.7 |
| m&p-XYLENE | 12.5 | 58.5 | 17.9 | 21.0 | 37.1 | 15.6 | 28.8 | 45.6 |
| o-XYLENE | 5.9 | 24.8 | 6.3 | 8.9 | 14.0 | 5.9 | 9.8 | 16.8 |
| n-PROPYLBENZENE | 0.8 | 4.5 | 2.3 | 1.2 | 2.9 | 0.8 | 3.1 | 3.7 |
| m-ETHYLTOLUENE | 3.2 | 15.0 | 5.1 | 4.9 | 7.6 | 4.0 | 7.0 | 9.3 |
| p-ETHYLTOLUENE | 1.7 | 8.2 | 2.8 | 2.6 | 2.6 | 2.1 | 4.3 | 3.2 |
| 1,3,5-TRIMETHYLBENZENE | 1.9 | 8.7 | 2.6 | 3.0 | 4.8 | 2.7 | 3.4 | 5.4 |
| o-ETHYLTOLUENE | 1.5 | 8.0 | 2.6 | 2.3 | 4.6 | 2.0 | 4.1 | 5.9 |
| 1,2,4-TRIMETHYLBENZENE | 6.0 | 32.5 | 7.9 | 8.7 | 8.9 | 11.7 | 10.1 | 22.8 |
| n-DECANE | 0.9 | 6.4 | 3.8 | 1.6 | 4.2 | 1.5 | 6.3 | 4.5 |
| 1,4-DIETHYLBENZENE | 1.4 | 7.6 | 2.7 | 2.0 | 3.8 | 1.8 | 4.1 | 4.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.4 | 6.3 | 2.4 | * | 3.5 | 1.5 | 3.1 | 5.0 |
| SUM OTHER AROMATICS | 20.4 | 77.7 | 51.2 | 28.0 | 40.9 | 24.6 | 46.5 | 43.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 8.9 | 59.1 | 13.7 | 17.8 | 33.3 | 13.9 | 29.1 | 38.4 |
| SUM UNKNOWNS | 1.5 | 8.9 | 70.3 | 4.6 | 8.0 | 0.4 | 31.0 | 9.1 |
| SUM PARAFFINS | 171.7 | 888.3 | 231.4 | 271.6 | 457.6 | 263.4 | 605.6 | 779.9 |
| SUM OLEFINS | 52.5 | 169.9 | 107.3 | 68.4 | 105.4 | 41.8 | 130.9 | 150.6 |
| SUM AROMATICS | 89.8 | 412.8 | 159.3 | 133.3 | 226.0 | 114.6 | 215.9 | 295.0 |
| SUM HYDROCARBONS | 324.5 | 1539.1 | 582.1 | 495.9 | 830.4 | 434.3 | 1012.6 | 1273.2 |

TABLE A-20d. Hydrocarbon concentration data for EL PASO, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 2328 85/09/04 | 2360 84/09/20 | 2410 86/08/21 | 2428 84/09/25 | 2447 85/09/12 | 2555RA0 85/09/19 | 2663 86/09/05 | 2737 86/09/11 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 17.1 | 82.9 | 30.6 | 31.3 | 7.8 | 18.1 | 32.2 | 6.4 |
| PROPANE | 25.5 | 91.7 | 96.0 | 101.4 | 16.0 | 31.7 | 50.1 | 22.2 |
| ISOBUTANE | 21.6 | 39.9 | 21.4 | 175.6 | 5.6 | 20.2 | 21.3 | 9.3 |
| n-BUTANE | 32.0 | 89.7 | 53.4 | 197.7 | 15.6 | 42.5 | 37.6 | 17.2 |
| ISOPENTANE | 39.7 | 95.3 | 64.2 | 215.2 | 16.4 | 41.1 | 67.9 | 31.6 |
| n-PENTANE | 24.4 | 79.2 | 38.3 | 63.7 | 10.2 | 26.5 | 41.9 | 18.8 |
| 2,2-DIMETHYLBUTANE | 0.9 | 3.4 | 1.2 | 1.9 | 0.5 | 0.9 | 1.7 | 0.6 |
| CYCLOPENTANE | 2.4 | 6.3 | 3.5 | 5.9 | 1.0 | 2.7 | 4.0 | 1.8 |
| 2,3-DIMETHYLBUTANE | 3.8 | 9.0 | 5.7 | 12.5 | 1.6 | 3.9 | 6.6 | 3.1 |
| 2-METHYLPENTANE | 15.5 | 40.4 | 21.9 | 49.9 | 6.4 | 15.3 | 26.2 | 11.5 |
| 3-METHYLPENTANE | 10.7 | 31.6 | 15.1 | 35.8 | 5.8 | 10.7 | 18.1 | 7.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.3 | 39.9 | 16.5 | 25.7 | 5.5 | 13.8 | 20.7 | 13.9 |
| METHYLCYCLOPENTANE | 9.1 | 21.8 | 10.8 | 21.1 | 3.5 | 8.9 | 13.5 | 5.9 |
| 2,4-DIMETHYLPENTANE | 3.1 | 6.1 | 4.1 | 5.7 | 1.3 | 3.5 | 5.0 | 2.5 |
| CYCLOHEXANE | 3.5 | 8.8 | 3.7 | 6.1 | 1.3 | 3.7 | 4.6 | 2.1 |
| 2-METHYLHEXANE | 13.6 | 19.5 | 15.1 | 13.5 | 7.2 | 14.2 | 18.1 | 7.8 |
| 2,3-DIMETHYLPENTANE | * | 8.5 | * | * | * | * | * | * |
| 3-METHYLHEXANE | 7.5 | 21.0 | 9.3 | 15.1 | 3.2 | 7.5 | 12.0 | 4.6 |
| 2,2,4-TRIMETHYLPENTANE | 5.1 | 8.1 | 7.6 | 6.4 | 2.4 | 5.9 | 8.7 | 4.3 |
| n-HEPTANE | 7.1 | 24.5 | 7.7 | 11.5 | 3.3 | 6.6 | 9.4 | 4.6 |
| METHYLCYCLOHEXANE | 3.7 | 10.7 | 5.0 | 7.3 | 1.4 | 4.4 | 5.5 | 2.0 |
| 2,5-DIMETHYLHEXANE | 2.1 | 5.1 | 2.7 | 3.3 | 0.2 | 2.1 | 3.5 | 0.4 |
| 2,4-DIMETHYLHEXANE | 2.1 | 4.8 | 2.6 | 3.2 | 0.6 | 2.2 | 3.2 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 2.0 | 3.4 | 2.8 | 2.4 | 1.0 | 2.5 | 3.2 | 1.4 |
| 2-METHYLHEPTANE | 3.5 | 10.7 | 4.3 | 5.7 | 1.9 | 5.1 | 5.2 | 2.5 |
| 3-METHYLHEPTANE | 3.8 | 11.2 | 4.5 | 5.7 | 1.6 | 4.0 | 5.6 | 2.2 |
| 2,2,5-TRIMETHYLHEXANE | 1.6 | 4.1 | 2.9 | 2.8 | 0.7 | 2.2 | 4.4 | 2.2 |
| n-OCTANE | 3.9 | 13.9 | 5.2 | 5.5 | 1.9 | 6.1 | 7.0 | 2.3 |
| 2,4-DIMETHYLHEPTANE | 1.7 | 1.0 | 0.7 | 0.4 | 0.6 | 0.8 | 1.4 | 1.9 |
| 4-METHYLOCTANE | 2.3 | 8.6 | 4.0 | 3.6 | 0.9 | 2.5 | 5.0 | 1.9 |
| 3-METHYLOCTANE | 1.5 | 5.2 | 2.7 | 2.5 | 1.0 | 1.6 | 3.1 | 1.3 |
| n-NONANE | 2.6 | 9.1 | 4.1 | 4.0 | 1.4 | 3.4 | 4.1 | 1.4 |
| 4-METHYLNONANE | * | * | 1.1 | * | * | * | * | * |
| n-DECANE | 2.8 | 9.2 | 6.8 | 5.4 | 1.7 | 3.2 | 4.4 | 2.5 |
| SUM OTHER PARAFFINS | 28.5 | 103.5 | 35.0 | 62.4 | 11.8 | 31.0 | 41.4 | 13.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 26.9 | 67.1 | 28.3 | 34.5 | 12.4 | 23.8 | 36.7 | 13.5 |
| PROPENE | 9.4 | 23.8 | 19.1 | 32.4 | 4.2 | 11.0 | 20.7 | 8.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 8.8 | 17.1 | 10.3 | 36.7 | 3.4 | 8.4 | 13.9 | 6.7 |
| 1,3-BUTADIENE | 1.2 | 5.2 | 0.7 | 3.7 | 0.6 | 2.0 | 3.1 | 1.3 |
| t-2-BUTENE | 3.0 | 6.8 | 3.7 | 42.7 | 1.0 | 3.3 | 6.2 | 2.9 |
| c-2-BUTENE | 2.3 | 4.7 | 3.5 | 33.1 | 0.7 | 2.3 | 4.6 | 2.2 |
| 1-PENTENE | 1.5 | 4.5 | 2.1 | 14.1 | 0.4 | 1.5 | 2.6 | 1.2 |
| 2-METHYL-1-BUTENE | 2.5 | 5.0 | 3.2 | 19.2 | 0.9 | 2.0 | 4.5 | 2.0 |
| ISOPRENE | 1.1 | 2.2 | 0.8 | 1.5 | 1.2 | 1.0 | 1.3 | 0.5 |
| t-2-PENTENE | 2.6 | 5.7 | 4.0 | 20.5 | 0.9 | 2.8 | 5.2 | 2.3 |
| c-2-PENTENE | 3.2 | 5.6 | 5.3 | 25.3 | 1.3 | 3.6 | 6.3 | 4.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.6 | 1.4 | * | 6.7 | 0.1 | * | 1.2 | 0.5 |
| 2-METHYL-2-PENTENE | 1.2 | 2.8 | 1.7 | 5.0 | 0.4 | 1.1 | 2.0 | 0.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.3 | 14.7 | 1.9 | 2.3 | 1.0 | 2.2 | 1.3 | 2.1 |
| a-PINENE | 0.2 | 1.2 | 1.0 | * | 0.2 | 0.7 | * | * |
| SUM OTHER OLEFINS | 25.3 | 58.8 | 21.7 | 82.9 | 5.1 | 20.5 | 27.2 | 8.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 16.6 | 39.2 | 19.9 | 28.9 | 6.3 | 16.2 | 27.8 | 11.8 |
| TOLUENE | 39.2 | 107.7 | 54.1 | 57.2 | 18.3 | 38.4 | 61.5 | 27.6 |
| ETHYLBENZENE | 8.0 | 21.3 | 9.6 | 11.4 | 3.1 | 8.4 | 12.4 | 4.8 |
| m&p-XYLENE | 26.1 | 61.1 | 30.2 | 33.2 | 10.4 | 25.9 | 38.5 | 16.6 |
| o-XYLENE | 10.1 | 21.4 | 12.3 | 11.7 | 4.7 | 11.8 | 15.6 | 6.0 |
| n-PROPYLBENZENE | 1.9 | 6.0 | 2.5 | 3.1 | 0.7 | 1.9 | 4.9 | 1.0 |
| m-ETHYLTOLUENE | 6.6 | 16.3 | 7.9 | 8.6 | 2.6 | 6.3 | 10.4 | 4.2 |
| p-ETHYLTOLUENE | 3.3 | 8.6 | 4.2 | 4.7 | 1.4 | 3.2 | 5.7 | 2.3 |
| 1,3,5-TRIMETHYLBENZENE | 3.7 | 9.2 | 3.8 | 4.6 | 1.5 | 3.7 | 6.4 | 2.7 |
| o-ETHYLTOLUENE | 3.2 | 8.7 | 4.1 | 4.2 | 1.3 | 3.0 | 5.3 | 2.0 |
| 1,2,4-TRIMETHYLBENZENE | 11.5 | 24.6 | 16.4 | 14.2 | 6.4 | 13.0 | 21.4 | 11.0 |
| n-DECANE | 2.8 | 8.5 | 3.6 | 5.2 | 0.6 | 2.4 | 3.4 | 1.8 |
| 1,4-DIETHYLBENZENE | 2.7 | 8.2 | 3.1 | 4.9 | 0.9 | 2.6 | 4.2 | 1.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 7.4 | 3.8 | 2.6 | * | 2.2 | 3.2 | 1.6 |
| SUM OTHER AROMATICS | 22.8 | 80.8 | 36.0 | 50.8 | 11.5 | 19.3 | 32.4 | 12.3 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 25.2 | 56.7 | 25.6 | 28.4 | 9.1 | 26.3 | 37.7 | 11.0 |
| SUM UNKNOWNS | 0.7 | 0.6 | 0.5 | 45.5 | 4.2 | 9.7 | 0.1 | 1.2 |
| SUM PARAFFINS | 319.5 | 929.7 | 512.0 | 1111.6 | 143.0 | 350.5 | 498.2 | 214.4 |
| SUM OLEFINS | 91.8 | 227.4 | 108.1 | 361.3 | 34.4 | 86.9 | 137.6 | 57.0 |
| SUM AROMATICS | 159.2 | 429.6 | 212.1 | 245.9 | 70.2 | 159.0 | 253.7 | 108.1 |
| SUM HYDROCARBONS | 596.6 | 1645.7 | 858.4 | 1793.4 | 261.2 | 632.5 | 927.5 | 391.9 |

TABLE A-20e. Hydrocarbon concentration data for EL PASO, TX

| Compound | ID Number and Sample Date<br>2764<br>86/09/12 | <br>2833<br>86/09/17 | <br>2847<br>86/09/18 |
|---|---|---|---|
| **PARAFFINS** | | | |
| ETHANE | 36.7 | 25.8 | 26.0 |
| PROPANE | 53.1 | 61.8 | 36.0 |
| ISOBUTANE | 39.2 | 13.8 | 10.9 |
| n-BUTANE | 45.8 | 26.6 | 19.9 |
| ISOPENTANE | 71.0 | 42.2 | 36.1 |
| n-PENTANE | 43.6 | 25.9 | 23.0 |
| 2,2-DIMETHYLBUTANE | 1.6 | 0.9 | 0.8 |
| CYCLOPENTANE | 4.3 | 2.6 | 2.2 |
| 2,3-DIMETHYLBUTANE | 6.9 | 4.6 | 4.0 |
| 2-METHYLPENTANE | 27.6 | 17.3 | 15.3 |
| 3-METHYLPENTANE | 19.4 | 11.3 | 10.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 22.1 | 14.2 | 12.4 |
| METHYLCYCLOPENTANE | 14.8 | 8.8 | 7.8 |
| 2,4-DIMETHYLPENTANE | 5.3 | 3.7 | 3.2 |
| CYCLOHEXANE | 5.6 | 3.0 | 2.6 |
| 2-METHYLHEXANE | 19.1 | 12.4 | 11.5 |
| 2,3-DIMETHYLPENTANE | * | * | * |
| 3-METHYLHEXANE | 12.2 | 8.2 | 7.7 |
| 2,2,4-TRIMETHYLPENTANE | 9.4 | 6.6 | 5.7 |
| n-HEPTANE | 11.6 | 7.7 | 7.2 |
| METHYLCYCLOHEXANE | 7.4 | 3.6 | 3.3 |
| 2,5-DIMETHYLHEXANE | 3.6 | 2.7 | 2.4 |
| 2,4-DIMETHYLHEXANE | 3.5 | 2.6 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 3.4 | 2.3 | 2.0 |
| 2-METHYLHEPTANE | 5.9 | 4.9 | 4.6 |
| 3-METHYLHEPTANE | 6.3 | 4.3 | 3.7 |
| 2,2,5-TRIMETHYLHEXANE | 4.9 | 3.3 | 2.7 |
| n-OCTANE | 6.4 | 4.5 | 5.6 |
| 2,4-DIMETHYLHEPTANE | 1.2 | 0.7 | 0.8 |
| 4-METHYLOCTANE | 5.4 | 3.6 | 3.4 |
| 3-METHYLOCTANE | 3.5 | 2.1 | 2.0 |
| n-NONANE | 5.1 | 2.8 | 2.7 |
| 4-METHYLNONANE | 1.5 | * | * |
| n-DECANE | 5.5 | 3.9 | 3.4 |
| SUM OTHER PARAFFINS | 45.6 | 27.9 | 27.0 |

| | | | |
|---|---|---|---|
| OLEFINS | | | |
| ETHYLENE | 54.6 | 39.2 | 35.9 |
| PROPENE | 18.1 | 16.2 | 12.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 16.6 | 8.9 | 7.8 |
| 1,3-BUTADIENE | 3.4 | 1.2 | 2.1 |
| t-2-BUTENE | 7.2 | 3.4 | 3.1 |
| c-2-BUTENE | 5.5 | 2.8 | 2.5 |
| 1-PENTENE | 3.1 | 1.7 | 1.5 |
| 2-METHYL-1-BUTENE | 5.4 | 2.6 | 2.5 |
| ISOPRENE | 1.4 | 0.6 | 0.7 |
| t-2-PENTENE | 5.8 | 3.9 | 3.0 |
| c-2-PENTENE | 7.0 | 4.1 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.2 | 0.8 | 0.8 |
| 2-METHYL-2-PENTENE | 2.3 | 1.5 | 1.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.6 | 1.5 | 2.8 |
| a-PINENE | * | * | * |
| SUM OTHER OLEFINS | 31.4 | 13.6 | 17.2 |
| AROMATICS | | | |
| BENZENE | 29.0 | 20.2 | 17.8 |
| TOLUENE | 63.9 | 45.0 | 38.5 |
| ETHYLBENZENE | 13.3 | 8.8 | 8.1 |
| m&p-XYLENE | 41.0 | 29.1 | 25.1 |
| o-XYLENE | 16.5 | 9.4 | 9.5 |
| n-PROPYLBENZENE | 4.2 | 4.4 | 2.7 |
| m-ETHYLTOLUENE | 10.8 | 7.8 | 6.7 |
| p-ETHYLTOLUENE | 5.9 | 4.2 | 3.7 |
| 1,3,5-TRIMETHYLBENZENE | 5.5 | 4.6 | 4.2 |
| o-ETHYLTOLUENE | 5.7 | 3.7 | 3.5 |
| 1,2,4-TRIMETHYLBENZENE | 22.9 | 16.4 | 15.8 |
| n-DECANE | 3.8 | 2.5 | 2.2 |
| 1,4-DIETHYLBENZENE | 5.3 | 3.2 | 2.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.0 | 2.4 | 2.5 |
| SUM OTHER AROMATICS | 35.9 | 24.4 | 19.4 |
| SUMMARY | | | |
| ACETYLENE | 20.6 | 19.3 | 15.5 |
| SUM UNKNOWNS | 0.8 | * | 1.1 |
| SUM PARAFFINS | 560.0 | 368.0 | 310.0 |
| SUM OLEFINS | 166.3 | 102.7 | 93.7 |
| SUM AROMATICS | 268.4 | 186.7 | 163.1 |
| SUM HYDROCARBONS | 1016.4 | 676.8 | 583.5 |

TABLE A-21a. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date<br>1158<br>86/06/11 | 1160<br>85/06/17 | 1200<br>84/07/12 | 1239<br>84/07/16 | 1288<br>85/06/24 | 1294<br>84/07/18 | 1310<br>86/06/20 | 1334<br>84/07/20 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 12.7 | 21.5 | 29.4 | 24.5 | 14.7 | 38.4 | 27.8 | 25.5 |
| PROPANE | 10.0 | 14.1 | 15.9 | 9.5 | 11.9 | 36.2 | 23.0 | 20.2 |
| ISOBUTANE | 4.0 | 9.5 | 8.4 | 6.8 | 7.4 | 16.2 | 10.5 | 8.5 |
| n-BUTANE | 17.6 | 43.2 | 34.9 | 30.5 | 30.4 | 63.7 | 39.5 | 29.7 |
| ISOPENTANE | 20.5 | 45.1 | 40.4 | 36.3 | 34.9 | 58.2 | 46.8 | 35.0 |
| n-PENTANE | 12.3 | 24.7 | 25.3 | 22.1 | 21.1 | 36.9 | 24.9 | 23.0 |
| 2,2-DIMETHYLBUTANE | 0.7 | 1.6 | 1.3 | 1.1 | 1.1 | 1.5 | 1.4 | 1.4 |
| CYCLOPENTANE | 1.2 | 2.1 | 2.4 | 1.9 | 1.6 | 3.2 | 2.3 | 2.0 |
| 2,3-DIMETHYLBUTANE | 1.7 | 3.6 | 3.6 | 3.1 | 2.7 | 4.4 | 3.7 | 3.3 |
| 2-METHYLPENTANE | 7.6 | 14.9 | 15.2 | 12.9 | 11.8 | 18.6 | 14.9 | 14.1 |
| 3-METHYLPENTANE | 4.9 | 13.8 | 11.7 | 9.3 | 7.2 | 14.0 | 10.3 | 11.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.3 | 11.9 | 10.6 | 8.6 | 10.1 | 11.5 | 10.6 | 11.1 |
| METHYLCYCLOPENTANE | 3.2 | 6.1 | 5.9 | 5.0 | 5.0 | 7.4 | 5.9 | 6.0 |
| 2,4-DIMETHYLPENTANE | 0.7 | 1.8 | 1.4 | 1.7 | 1.3 | 2.0 | 1.6 | 1.8 |
| CYCLOHEXANE | 1.0 | 2.2 | 2.0 | 1.4 | 1.7 | 2.4 | 1.8 | 1.9 |
| 2-METHYLHEXANE | 5.3 | 6.0 | 7.6 | 6.0 | 6.8 | 6.9 | 7.2 | 7.4 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 3.8 | 14.0 | 8.4 | 4.5 | 4.2 | 5.0 | 5.5 | 5.7 |
| 2,2,4-TRIMETHYLPENTANE | 3.5 | 6.6 | 7.1 | 6.5 | 5.6 | 8.2 | 6.0 | 7.4 |
| n-HEPTANE | 2.2 | 5.2 | 5.4 | 4.3 | 4.2 | 5.1 | 4.2 | 5.1 |
| METHYLCYCLOHEXANE | 1.5 | 3.2 | 3.1 | 2.4 | 3.2 | 3.8 | 3.2 | 3.1 |
| 2,5-DIMETHYLHEXANE | 1.0 | 1.6 | 1.6 | 1.4 | 1.1 | 1.9 | 1.7 | 1.6 |
| 2,4-DIMETHYLHEXANE | 0.9 | 2.4 | 1.8 | 1.9 | 1.2 | 2.5 | 1.7 | 1.9 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 1.9 | 2.5 | 2.3 | 1.8 | 2.8 | 2.7 | 2.6 |
| 2-METHYLHEPTANE | 2.0 | 3.2 | 2.4 | 1.6 | 1.2 | 3.9 | 2.8 | 2.6 |
| 3-METHYLHEPTANE | 2.3 | 2.0 | 2.5 | 2.1 | 1.6 | 3.0 | 2.1 | 2.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 0.6 | 0.7 | 0.6 | 0.5 | 0.8 | 1.1 | 0.8 |
| n-OCTANE | 2.0 | 2.0 | 2.4 | 1.8 | 2.3 | 2.6 | 2.1 | 2.0 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | 0.5 | * |
| 4-METHYLOCTANE | 1.6 | 1.6 | 2.5 | * | 1.5 | 2.1 | 1.8 | 1.9 |
| 3-METHYLOCTANE | 2.4 | 1.1 | 1.0 | 0.9 | 1.4 | 1.4 | 1.3 | 1.3 |
| n-NONANE | * | 1.3 | 2.2 | 1.7 | 2.2 | 1.7 | 2.7 | 2.9 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.9 | 6.7 | 2.5 | 2.6 | 7.0 | 2.2 | 3.0 | 3.1 |
| SUM OTHER PARAFFINS | 28.6 | 64.9 | 61.5 | 52.4 | 26.6 | 48.1 | 17.8 | 50.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 4.4 | 16.5 | 22.0 | 23.0 | 15.9 | 26.1 | 21.0 | 23.9 |
| PROPENE | 3.6 | 5.4 | 6.6 | 5.8 | 5.8 | 8.6 | 7.1 | 8.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.8 | 5.4 | 9.6 | 6.1 | 4.6 | 8.3 | 6.5 | 6.5 |
| 1,3-BUTADIENE | 0.6 | 1.2 | 1.2 | 0.9 | 1.2 | 1.4 | 0.9 | 2.1 |
| t-2-BUTENE | 0.9 | 2.2 | 2.5 | 2.0 | 2.2 | 3.1 | 2.0 | 2.3 |
| c-2-BUTENE | 0.6 | 1.8 | 2.1 | 1.9 | 1.6 | 2.8 | 1.6 | 1.5 |
| 1-PENTENE | 0.8 | 2.8 | 2.3 | 1.4 | 1.6 | 3.5 | 1.7 | 2.0 |
| 2-METHYL-1-BUTENE | 1.2 | 4.4 | 2.8 | 2.8 | 2.2 | 3.7 | 2.5 | 3.0 |
| ISOPRENE | 0.8 | 1.4 | 1.8 | 2.1 | 2.4 | 2.5 | 0.9 | 2.4 |
| t-2-PENTENE | 1.4 | 4.2 | 3.1 | 3.1 | 3.1 | 4.1 | 3.2 | 2.6 |
| c-2-PENTENE | 1.8 | 5.7 | 2.9 | 3.7 | 4.1 | 4.8 | 3.3 | 3.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 4.7 | 1.5 | * | 0.6 | 1.0 | 0.4 | 0.5 |
| 2-METHYL-2-PENTENE | 0.6 | 1.5 | 1.4 | 1.4 | 1.1 | 1.6 | 1.2 | 1.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.9 | 1.4 | 2.0 | 0.9 | 5.0 | 1.6 | 1.9 | 1.3 |
| a-PINENE | 4.2 | 3.5 | 3.2 | 4.1 | 4.1 | 2.6 | 0.9 | 2.5 |
| SUM OTHER OLEFINS | 16.7 | 59.1 | 53.0 | 64.4 | 29.8 | 55.3 | 14.3 | 44.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 7.0 | 10.5 | 11.1 | 10.4 | 8.4 | 11.2 | 14.0 | 12.3 |
| TOLUENE | 22.5 | 26.7 | 32.9 | 24.5 | 30.5 | 35.1 | 39.5 | 29.3 |
| ETHYLBENZENE | 6.5 | 4.7 | 6.3 | 5.5 | 4.7 | 7.5 | 6.9 | 6.3 |
| m&p-XYLENE | 22.2 | 15.4 | 18.7 | 14.3 | 15.1 | 21.5 | 19.6 | 18.0 |
| o-XYLENE | 9.4 | 5.1 | 6.3 | 5.8 | 5.2 | 7.5 | 7.9 | 6.5 |
| n-PROPYLBENZENE | 1.6 | 1.9 | 2.1 | 2.3 | 1.5 | 2.2 | 2.0 | 2.3 |
| m-ETHYLTOLUENE | 6.9 | 4.6 | 6.5 | 5.7 | 4.8 | 7.0 | 6.7 | 6.5 |
| p-ETHYLTOLUENE | 3.6 | 2.7 | 4.0 | 3.3 | 2.7 | 3.9 | 3.6 | 3.7 |
| 1,3,5-TRIMETHYLBENZENE | 3.3 | 2.8 | 2.0 | 3.0 | 3.5 | 3.6 | 4.1 | 3.6 |
| o-ETHYLTOLUENE | 3.4 | 2.6 | 3.4 | 3.4 | 2.5 | 3.8 | 3.3 | 3.6 |
| 1,2,4-TRIMETHYLBENZENE | 10.5 | 8.5 | 8.9 | 8.4 | 9.6 | 10.4 | 13.6 | 9.5 |
| n-DECANE | * | 1.7 | 5.2 | 4.9 | 1.6 | 5.7 | 2.6 | 3.9 |
| 1,4-DIETHYLBENZENE | 0.6 | 3.4 | 2.5 | 2.9 | 2.5 | 3.7 | 2.7 | 3.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.9 | 1.8 | 2.2 | 2.2 | 3.1 | 1.1 | 2.4 | 2.7 |
| SUM OTHER AROMATICS | 55.8 | 55.4 | 46.4 | 36.1 | 31.9 | 41.3 | 35.6 | 36.1 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 3.4 | 10.8 | 14.9 | 13.8 | 9.8 | 18.9 | 13.8 | 12.9 |
| SUM UNKNOWNS | 4.8 | 4.6 | 8.6 | * | 5.3 | * | 1.2 | 4.4 |
| SUM PARAFFINS | 166.9 | 341.8 | 325.1 | 269.3 | 236.8 | 418.1 | 293.7 | 298.3 |
| SUM OLEFINS | 41.9 | 121.8 | 118.6 | 124.2 | 86.1 | 131.8 | 70.0 | 108.3 |
| SUM AROMATICS | 155.7 | 148.4 | 159.2 | 133.4 | 128.2 | 166.3 | 165.0 | 147.9 |
| SUM HYDROCARBONS | 372.8 | 627.6 | 626.5 | 540.9 | 466.4 | 735.3 | 543.9 | 572.0 |

## TABLE A-21b. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1376<br>84/07/23 | 1402<br>86/06/25 | 1423<br>84/07/25 | 1456<br>85/07/05 | 1467<br>85/07/08 | 1479<br>86/07/01 | 1501<br>85/07/09 | 1518<br>85/07/10 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 60.3 | 68.9 | 40.1 | 18.7 | 39.6 | 8.9 | 14.0 | 14.4 |
| PROPANE | 65.4 | 47.6 | 38.5 | 15.8 | 37.6 | 7.7 | 11.4 | 12.6 |
| ISOBUTANE | 16.7 | 53.2 | 29.4 | 10.0 | 18.8 | 3.7 | 9.7 | 7.8 |
| n-BUTANE | 65.2 | 197.2 | 124.9 | 34.9 | 53.7 | 16.5 | 39.7 | 28.6 |
| ISOPENTANE | 81.6 | 222.7 | 116.5 | 38.1 | 69.1 | 22.9 | 51.5 | 37.7 |
| n-PENTANE | 52.6 | 113.4 | 69.0 | 22.6 | 39.9 | 11.9 | 30.5 | 20.6 |
| 2,2-DIMETHYLBUTANE | 2.9 | 6.2 | 10.4 | 0.9 | 2.3 | 0.7 | 3.0 | 1.3 |
| CYCLOPENTANE | 4.7 | 9.3 | 6.7 | 2.3 | 3.4 | 1.1 | 3.1 | 2.1 |
| 2,3-DIMETHYLBUTANE | 9.2 | 14.8 | 10.1 | 3.1 | 5.6 | 1.9 | 6.3 | 3.1 |
| 2-METHYLPENTANE | 34.0 | 64.4 | 36.9 | 13.0 | 24.4 | 7.4 | 31.3 | 12.3 |
| 3-METHYLPENTANE | 28.6 | 35.9 | 25.1 | 8.6 | 15.8 | 5.4 | 26.1 | 7.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 25.7 | 38.0 | 28.2 | 9.5 | 18.4 | 5.1 | 38.1 | 9.0 |
| METHYLCYCLOPENTANE | 14.7 | 22.0 | 16.1 | 5.2 | 9.8 | 2.9 | 13.7 | 4.8 |
| 2,4-DIMETHYLPENTANE | 4.7 | 5.6 | 7.6 | 1.4 | 2.7 | 0.8 | 2.6 | 1.5 |
| CYCLOHEXANE | 5.4 | 6.1 | 5.1 | 1.6 | 3.2 | 0.9 | 3.1 | 1.4 |
| 2-METHYLHEXANE | 17.5 | 23.0 | 33.4 | 5.0 | 12.1 | 3.3 | 12.6 | 7.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 16.5 | 17.4 | 17.0 | 4.4 | 8.2 | 2.6 | 8.8 | 4.6 |
| 2,2,4-TRIMETHYLPENTANE | 16.9 | 27.5 | 21.7 | 5.3 | 14.0 | 2.8 | 7.6 | 6.0 |
| n-HEPTANE | 13.7 | 17.8 | 14.1 | 4.1 | 8.6 | 2.2 | 8.6 | 3.4 |
| METHYLCYCLOHEXANE | 7.4 | 11.7 | 18.1 | 2.8 | 5.6 | 1.7 | 6.2 | 3.4 |
| 2,5-DIMETHYLHEXANE | 3.8 | 5.5 | 4.4 | 1.4 | 2.9 | 0.4 | 2.6 | 1.5 |
| 2,4-DIMETHYLHEXANE | 4.3 | 6.0 | 5.5 | 1.6 | 2.9 | 0.7 | 2.4 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 6.2 | 8.7 | 12.6 | 3.0 | 4.3 | 1.2 | 3.2 | 3.0 |
| 2-METHYLHEPTANE | 5.6 | 9.9 | 15.9 | 2.0 | 3.5 | * | 2.5 | 1.8 |
| 3-METHYLHEPTANE | 6.1 | 7.8 | 8.8 | 2.1 | 3.4 | 0.9 | 2.8 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.9 | 3.0 | 2.9 | 0.6 | 1.3 | 0.5 | 0.9 | 0.7 |
| n-OCTANE | 5.5 | 5.5 | 12.9 | 1.9 | 3.4 | 1.0 | 2.3 | 1.6 |
| 2,4-DIMETHYLHEPTANE | 0.5 | 1.2 | 2.0 | * | * | 0.7 | * | * |
| 4-METHYLOCTANE | 5.6 | 5.5 | 5.6 | 1.3 | 2.6 | 1.2 | 1.8 | 0.9 |
| 3-METHYLOCTANE | 2.6 | 4.2 | 4.6 | 1.6 | 2.3 | 0.8 | 2.1 | 1.4 |
| n-NONANE | 4.1 | 5.3 | 9.3 | 1.2 | 3.0 | 1.2 | 2.2 | 1.3 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.9 | 8.2 | 5.1 | 6.3 | 10.7 | 1.3 | 7.2 | 5.1 |
| SUM OTHER PARAFFINS | 75.2 | 75.7 | 219.1 | 24.2 | 41.8 | 9.1 | 37.1 | 25.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 48.4 | 51.9 | 49.7 | 15.5 | 32.7 | 12.0 | 26.7 | 23.9 |
| PROPENE | 16.9 | 18.0 | 18.7 | 4.9 | 13.5 | 3.6 | 7.3 | 5.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 12.4 | 19.0 | 14.2 | 4.7 | 10.7 | 3.5 | 8.0 | 5.6 |
| 1,3-BUTADIENE | 3.9 | 3.7 | 4.6 | 1.0 | 3.0 | 0.7 | 1.8 | 0.8 |
| t-2-BUTENE | 5.2 | 12.6 | 6.7 | 2.0 | 4.9 | 1.1 | 3.2 | 2.3 |
| c-2-BUTENE | 3.6 | 9.6 | 5.2 | 1.5 | 3.4 | 0.9 | 2.3 | 1.6 |
| 1-PENTENE | 4.0 | 7.8 | 5.4 | 1.7 | 3.2 | 0.8 | 2.2 | 1.6 |
| 2-METHYL-1-BUTENE | 5.3 | 10.9 | 6.7 | 2.4 | 5.0 | 1.2 | 3.5 | 2.5 |
| ISOPRENE | 3.1 | 3.5 | 1.9 | 1.3 | 2.3 | 0.6 | 2.5 | 1.8 |
| t-2-PENTENE | 6.1 | 11.9 | 8.0 | 3.3 | 5.2 | 1.5 | 4.2 | 3.0 |
| c-2-PENTENE | 4.7 | 14.2 | 7.5 | * | 6.2 | 1.8 | 5.3 | 4.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.7 | 12.4 | 11.4 | 0.6 | 2.1 | 0.2 | 1.9 | 1.6 |
| 2-METHYL-2-PENTENE | 2.9 | 3.9 | 2.9 | 1.1 | 1.7 | 0.2 | 1.4 | 1.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.5 | 5.8 | 3.1 | 0.9 | 3.5 | 1.7 | 1.2 | 0.9 |
| a-PINENE | 3.7 | 5.8 | 3.5 | 5.5 | 5.0 | 1.5 | 13.8 | 4.8 |
| SUM OTHER OLEFINS | 85.2 | 50.4 | 154.3 | 41.3 | 61.6 | 7.5 | 56.5 | 48.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 25.7 | 40.4 | 28.5 | 9.0 | 18.6 | 6.2 | 13.0 | 9.9 |
| TOLUENE | 66.8 | 111.0 | 84.7 | 23.2 | 53.3 | 20.5 | 38.5 | 27.5 |
| ETHYLBENZENE | 13.6 | 19.7 | 15.1 | 4.4 | 9.2 | 3.1 | 6.9 | 5.0 |
| m&p-XYLENE | 38.8 | 55.7 | 45.2 | 13.6 | 27.5 | 10.1 | 19.8 | 15.0 |
| o-XYLENE | 13.9 | 22.0 | 17.7 | 4.8 | 10.5 | 4.3 | 7.1 | 5.6 |
| n-PROPYLBENZENE | 4.3 | 5.4 | 4.5 | 1.1 | 2.6 | 0.7 | 1.7 | 1.3 |
| m-ETHYLTOLUENE | 12.8 | 16.2 | 15.8 | 4.3 | 10.9 | 3.2 | 6.7 | 5.1 |
| p-ETHYLTOLUENE | 7.1 | 8.0 | 7.3 | 2.6 | 5.6 | 1.7 | 3.6 | 2.4 |
| 1,3,5-TRIMETHYLBENZENE | 7.0 | 9.4 | 8.0 | 2.5 | 7.1 | 2.1 | 4.5 | 2.7 |
| o-ETHYLTOLUENE | 6.5 | 8.4 | 7.2 | 2.1 | 5.2 | 1.8 | 3.9 | 2.4 |
| 1,2,4-TRIMETHYLBENZENE | 20.1 | 30.0 | 20.2 | 7.7 | 17.6 | 7.8 | 11.3 | 9.4 |
| n-DECANE | 6.1 | 8.8 | 9.2 | * | 4.4 | 1.3 | 2.7 | 2.1 |
| 1,4-DIETHYLBENZENE | 6.4 | 8.2 | 7.0 | 2.7 | 5.0 | 1.3 | 2.8 | 2.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.2 | 6.4 | 4.9 | 1.3 | 3.9 | 1.0 | 1.9 | 1.6 |
| SUM OTHER AROMATICS | 77.9 | 92.2 | 85.4 | 43.3 | 67.9 | 21.2 | 44.3 | 30.8 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 29.2 | 36.0 | 37.6 | 11.5 | 26.9 | 5.4 | 15.7 | 8.7 |
| SUM UNKNOWNS | 14.6 | 4.1 | 38.6 | 7.2 | 8.9 | 1.7 | 9.2 | 5.3 |
| SUM PARAFFINS | 672.4 | 1150.6 | 978.9 | 256.0 | 476.5 | 130.5 | 396.4 | 236.3 |
| SUM OLEFINS | 212.1 | 242.1 | 304.3 | 88.4 | 164.7 | 39.6 | 142.6 | 109.9 |
| SUM AROMATICS | 311.8 | 442.3 | 361.3 | 123.1 | 249.8 | 87.1 | 169.3 | 123.8 |
| SUM HYDROCARBONS | 1240.3 | 1875.5 | 1720.8 | 486.3 | 927.1 | 264.5 | 733.5 | 484.2 |

TABLE A-21c. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1531<br>85/07/11 | 1546<br>85/07/12 | 1565<br>84/08/02 | 1630<br>84/08/07 | 1646<br>86/07/10 | 1703<br>85/07/24 | 1739<br>84/08/14 | 1754<br>86/07/17 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 27.7 | 24.5 | 83.9 | 23.0 | 15.0 | 36.5 | 110.2 | 10.2 |
| PROPANE | 29.8 | 19.0 | 56.7 | 12.9 | 11.9 | 41.0 | 88.3 | 6.7 |
| ISOBUTANE | 16.0 | 12.0 | 15.7 | 5.8 | 11.8 | 13.1 | 40.3 | 3.8 |
| n-BUTANE | 56.6 | 48.6 | 48.7 | 24.7 | 46.9 | 43.1 | 147.5 | 14.8 |
| ISOPENTANE | 75.3 | 61.3 | 56.8 | 29.3 | 64.3 | 57.5 | 149.4 | 23.0 |
| n-PENTANE | 43.6 | 35.6 | 34.2 | 16.3 | 30.1 | 33.5 | 101.1 | 12.1 |
| 2,2-DIMETHYLBUTANE | 2.9 | 2.2 | 4.7 | 1.3 | 2.3 | 2.1 | 3.5 | 0.7 |
| CYCLOPENTANE | 3.8 | 3.1 | 3.1 | 1.6 | 2.5 | 3.9 | 9.4 | 1.1 |
| 2,3-DIMETHYLBUTANE | 6.5 | 5.2 | 5.0 | 3.5 | 4.6 | 5.2 | 12.3 | 2.0 |
| 2-METHYLPENTANE | 27.4 | 21.5 | 22.8 | 14.5 | 16.1 | 21.6 | 51.1 | 7.3 |
| 3-METHYLPENTANE | 17.7 | 13.3 | 17.2 | 9.0 | 10.8 | 15.2 | 39.6 | 5.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 20.5 | 16.2 | 16.8 | 11.4 | 9.1 | 16.8 | 41.7 | 5.4 |
| METHYLCYCLOPENTANE | 10.5 | 8.4 | 9.4 | 6.0 | 5.4 | 8.9 | 24.3 | 2.9 |
| 2,4-DIMETHYLPENTANE | 3.2 | 2.5 | 2.8 | 2.0 | 1.5 | 2.7 | 6.4 | 0.8 |
| CYCLOHEXANE | 3.1 | 2.7 | 3.3 | 1.7 | 1.5 | 3.2 | 8.6 | 0.7 |
| 2-METHYLHEXANE | 11.0 | 12.9 | 13.6 | 7.0 | 5.4 | 14.3 | 27.6 | 3.4 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 9.0 | 7.9 | 24.3 | 4.6 | 4.0 | 8.6 | 21.6 | 2.6 |
| 2,2,4-TRIMETHYLPENTANE | 13.9 | 11.5 | 12.2 | 7.8 | 5.0 | 12.8 | 27.4 | 2.7 |
| n-HEPTANE | 10.3 | 8.0 | 11.3 | 4.5 | 3.0 | 10.0 | 21.5 | 3.0 |
| METHYLCYCLOHEXANE | 6.2 | 5.1 | 5.2 | 2.6 | 2.3 | 5.6 | 12.9 | 1.6 |
| 2,5-DIMETHYLHEXANE | 3.4 | 2.6 | 3.8 | 1.5 | 0.2 | 2.8 | 6.0 | 0.6 |
| 2,4-DIMETHYLHEXANE | 3.6 | 2.7 | 4.8 | 1.8 | 0.9 | 3.0 | 6.6 | 0.7 |
| 2,3,4-TRIMETHYLPENTANE | 5.1 | 3.4 | 4.2 | 3.1 | 2.1 | 4.5 | 9.5 | 1.4 |
| 2-METHYLHEPTANE | 4.2 | 3.3 | 4.2 | 1.5 | 1.7 | 5.6 | 9.4 | 2.3 |
| 3-METHYLHEPTANE | 4.2 | 3.6 | 4.1 | 2.1 | 1.4 | 4.4 | 9.9 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | 1.8 | 1.2 | 1.6 | 0.8 | 0.8 | 1.7 | 3.2 | 0.8 |
| n-OCTANE | 8.1 | 3.1 | 3.5 | 1.1 | 1.3 | 3.7 | 8.8 | 1.3 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.4 | * | 0.7 | 1.9 | 1.6 | 0.9 |
| 4-METHYLOCTANE | 3.2 | 2.6 | * | 0.7 | 1.5 | 2.4 | 7.6 | 1.1 |
| 3-METHYLOCTANE | 3.1 | 2.2 | 2.0 | 0.9 | 0.8 | 2.1 | 4.4 | 0.7 |
| n-NONANE | 3.4 | 2.3 | 3.8 | 2.2 | 1.0 | 2.2 | 7.3 | 0.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 8.5 | 6.0 | 4.7 | 2.3 | 1.6 | 7.6 | 8.7 | 2.0 |
| SUM OTHER PARAFFINS | 48.6 | 36.7 | 114.5 | 29.4 | 10.9 | 44.6 | 103.0 | 11.2 |

OLEFINS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ETHYLENE | 32.0 | 36.0 | 32.4 | 17.7 | 10.4 | 32.0 | 60.1 | 9.5 |
| PROPENE | 13.6 | 9.3 | 11.6 | 5.5 | 3.2 | 17.7 | 21.4 | 3.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 12.0 | 10.3 | 8.8 | 4.4 | 5.3 | 6.8 | 17.4 | 2.9 |
| 1,3-BUTADIENE | 3.0 | 1.9 | 2.9 | 0.8 | 0.7 | 3.2 | 4.7 | 0.6 |
| t-2-BUTENE | 4.9 | 3.7 | 3.1 | 1.1 | 3.4 | 4.1 | 8.8 | 1.0 |
| c-2-BUTENE | 3.6 | 2.7 | 2.1 | 1.2 | 2.9 | 2.8 | 6.6 | 0.8 |
| 1-PENTENE | 4.3 | 2.6 | 2.6 | 1.6 | 2.7 | 2.9 | 6.7 | 0.9 |
| 2-METHYL-1-BUTENE | 5.2 | 4.4 | 3.2 | 2.5 | 4.2 | 4.3 | 9.3 | 1.2 |
| ISOPRENE | 3.0 | 2.5 | 1.4 | 1.0 | 0.9 | 7.1 | 3.2 | 0.7 |
| t-2-PENTENE | 6.4 | 4.9 | 3.6 | 2.9 | 5.1 | 4.7 | 10.2 | 1.2 |
| c-2-PENTENE | * | 6.1 | 3.5 | 3.6 | 6.1 | 5.8 | 8.9 | 1.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.0 | 0.8 | * | 1.8 | 0.7 | 4.0 | 2.8 | 0.2 |
| 2-METHYL-2-PENTENE | 2.2 | 1.8 | 1.9 | 1.9 | 2.0 | 1.9 | 4.9 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.5 | 1.2 | 2.0 | 2.2 | 0.8 | 2.5 | 6.0 | 0.9 |
| a-PINENE | 7.1 | 4.1 | 1.6 | 0.9 | 1.6 | 4.4 | 2.7 | 1.4 |
| SUM OTHER OLEFINS | 71.6 | 42.3 | 89.2 | 43.1 | 17.9 | 33.7 | 89.2 | 4.3 |

AROMATICS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BENZENE | 18.2 | 16.9 | 17.3 | 8.6 | 8.5 | 17.9 | 37.3 | 6.1 |
| TOLUENE | 61.1 | 44.3 | 46.6 | 27.0 | 26.4 | 47.8 | 102.6 | 21.3 |
| ETHYLBENZENE | 11.3 | 8.5 | 9.1 | 4.4 | 4.0 | 9.2 | 27.1 | 3.4 |
| m&p-XYLENE | 32.9 | 25.0 | 26.7 | 13.7 | 12.6 | 27.4 | 84.7 | 10.2 |
| o-XYLENE | 12.0 | 10.0 | 9.5 | 5.0 | 6.4 | 11.9 | 25.0 | 5.4 |
| n-PROPYLBENZENE | 3.2 | 2.3 | 5.1 | 1.2 | 1.0 | 3.2 | 6.1 | 0.7 |
| m-ETHYLTOLUENE | 10.7 | 8.1 | 11.2 | 4.7 | 4.3 | 12.0 | 19.2 | 3.5 |
| p-ETHYLTOLUENE | 5.4 | 4.3 | 7.4 | 2.9 | 2.2 | 5.5 | 10.3 | 1.8 |
| 1,3,5-TRIMETHYLBENZENE | 6.8 | 4.7 | 6.2 | 2.8 | 2.9 | 6.8 | 11.4 | 2.2 |
| o-ETHYLTOLUENE | 5.7 | 4.0 | 6.1 | 2.5 | 2.3 | 5.3 | 9.9 | 2.2 |
| 1,2,4-TRIMETHYLBENZENE | 17.4 | 14.0 | 14.0 | 7.5 | 10.6 | 22.1 | 29.2 | 8.3 |
| n-DECANE | 4.2 | 2.3 | 8.6 | 3.8 | 1.3 | 4.7 | 10.2 | 1.7 |
| 1,4-DIETHYLBENZENE | 4.9 | 4.2 | 5.8 | 2.5 | 2.0 | 5.0 | 10.8 | 1.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.2 | 2.4 | 3.5 | 2.3 | 1.6 | * | 7.4 | 1.6 |
| SUM OTHER AROMATICS | 52.1 | 51.3 | 73.3 | 28.0 | 23.7 | 58.2 | 105.6 | 21.3 |

SUMMARY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ACETYLENE | 30.2 | 19.5 | 18.7 | 10.9 | 5.4 | 24.7 | 49.7 | 6.5 |
| SUM UNKNOWNS | 13.6 | 14.7 | 4.6 | 10.0 | 2.8 | 6.3 | 2.6 | 1.3 |
| SUM PARAFFINS | 493.6 | 392.7 | 600.9 | 238.2 | 279.7 | 443.6 | 1132.0 | 137.4 |
| SUM OLEFINS | 173.0 | 135.2 | 170.7 | 93.2 | 68.5 | 138.5 | 263.4 | 31.9 |
| SUM AROMATICS | 250.9 | 203.0 | 251.1 | 117.4 | 110.6 | 237.4 | 497.4 | 92.2 |
| SUM HYDROCARBONS | 961.3 | 765.2 | 1046.1 | 470.0 | 467.1 | 851.0 | 1945.2 | 269.5 |

## TABLE A-21d. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1802 84/08/16 | 1881 85/08/02 | 1893 86/07/24 | 1936 86/07/28 | 1944 84/08/24 | 1988 85/08/08 | 2031 85/08/12 | 2095 86/08/05 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 45.8 | 73.2 | 29.0 | 16.8 | 39.0 | 46.6 | 21.4 | 29.7 |
| PROPANE | 29.3 | 58.8 | 22.2 | 11.5 | 35.6 | 41.0 | 18.7 | 26.1 |
| ISOBUTANE | 12.5 | 59.1 | 11.0 | 7.0 | 13.3 | 13.6 | 8.8 | 13.3 |
| n-BUTANE | 58.9 | 173.8 | 43.9 | 28.5 | 39.4 | 52.1 | 35.1 | 37.9 |
| ISOPENTANE | 74.5 | 188.9 | 61.5 | 41.0 | 42.9 | 73.8 | 49.8 | 48.7 |
| n-PENTANE | 43.5 | 108.4 | 33.1 | 21.1 | 28.4 | 42.0 | 28.2 | 24.1 |
| 2,2-DIMETHYLBUTANE | 2.8 | 4.6 | 2.0 | 1.1 | 1.7 | 2.6 | 1.5 | 1.2 |
| CYCLOPENTANE | 4.4 | 8.0 | 3.6 | 1.7 | 2.6 | 3.7 | 2.7 | 1.9 |
| 2,3-DIMETHYLBUTANE | 7.6 | 12.2 | 5.3 | 3.1 | 5.0 | 6.6 | 4.0 | 3.5 |
| 2-METHYLPENTANE | 32.8 | 52.2 | 19.4 | 12.7 | 22.7 | 26.9 | 16.2 | 14.2 |
| 3-METHYLPENTANE | 21.8 | 30.4 | 13.5 | 9.1 | 18.4 | 16.5 | 10.1 | 9.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 23.3 | 41.3 | 13.6 | 9.4 | 18.5 | 20.0 | 12.5 | 10.4 |
| METHYLCYCLOPENTANE | 14.2 | 23.5 | 7.5 | 5.0 | 8.9 | 11.0 | 6.7 | 5.6 |
| 2,4-DIMETHYLPENTANE | 4.5 | 5.3 | 2.3 | 1.6 | 2.1 | 3.6 | 2.1 | 1.6 |
| CYCLOHEXANE | 4.1 | 9.7 | 2.3 | 1.3 | 2.4 | 3.6 | 2.2 | 1.8 |
| 2-METHYLHEXANE | 17.8 | 24.1 | 9.7 | 6.6 | 10.7 | 16.2 | 10.3 | 7.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 14.3 | 17.1 | 7.0 | 5.0 | 11.2 | 10.2 | 5.7 | 5.3 |
| 2,2,4-TRIMETHYLPENTANE | 19.6 | 17.2 | 7.9 | 5.5 | 8.7 | 18.0 | 8.6 | 6.3 |
| n-HEPTANE | 12.8 | 22.0 | 5.4 | 3.6 | 9.1 | 10.4 | 5.5 | 5.7 |
| METHYLCYCLOHEXANE | 6.5 | 18.1 | 3.7 | 2.5 | 3.9 | 7.0 | 3.8 | 3.1 |
| 2,5-DIMETHYLHEXANE | 4.2 | 5.2 | 2.4 | 0.6 | 2.0 | 3.6 | 2.1 | 1.8 |
| 2,4-DIMETHYLHEXANE | 5.0 | 4.8 | 2.3 | 1.4 | 2.5 | 3.8 | 2.1 | 1.7 |
| 2,3,4-TRIMETHYLPENTANE | 7.3 | 6.8 | 3.4 | 2.4 | 2.7 | 6.3 | 3.5 | 2.4 |
| 2-METHYLHEPTANE | 5.8 | 9.7 | 2.7 | 2.5 | 2.7 | 5.3 | 2.9 | 1.9 |
| 3-METHYLHEPTANE | 6.3 | 8.5 | 3.0 | 1.9 | 3.0 | 5.4 | 2.8 | 2.1 |
| 2,2,5-TRIMETHYLHEXANE | 2.2 | 2.7 | 1.8 | 1.4 | 0.8 | 2.1 | 1.1 | 1.1 |
| n-OCTANE | 5.5 | 14.6 | 3.4 | 1.7 | 3.7 | 8.2 | 3.5 | 2.3 |
| 2,4-DIMETHYLHEPTANE | * | * | 1.2 | 1.1 | 0.2 | * | * | 1.1 |
| 4-METHYLOCTANE | 5.3 | 5.3 | 2.6 | 2.0 | 3.9 | 3.4 | 1.7 | 2.1 |
| 3-METHYLOCTANE | 2.8 | 4.1 | 1.6 | 1.1 | 1.7 | 3.9 | 2.5 | 1.3 |
| n-NONANE | 3.4 | 7.3 | 2.3 | 1.4 | 3.1 | 3.4 | 1.9 | 1.9 |
| 4-METHYLNONANE | * | 1.7 | * | * | * | * | * | * |
| n-DECANE | 4.5 | 10.0 | 3.7 | 2.8 | 3.1 | 5.2 | 4.4 | 3.0 |
| SUM OTHER PARAFFINS | 62.7 | 100.3 | 27.1 | 13.6 | 59.4 | 48.6 | 27.0 | 15.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 53.9 | 46.1 | 30.0 | 17.1 | 32.3 | 37.7 | 22.6 | 17.6 |
| PROPENE | 17.2 | 17.6 | 7.8 | 4.8 | 9.2 | 14.3 | 8.9 | 5.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 13.7 | 24.9 | 7.4 | 4.8 | 7.2 | 11.6 | 7.5 | 5.5 |
| 1,3-BUTADIENE | 4.0 | 3.6 | 1.4 | 0.2 | 1.6 | 2.7 | 2.0 | 0.3 |
| t-2-BUTENE | 4.3 | 18.4 | 3.3 | 1.6 | 1.7 | 3.9 | 2.9 | 1.7 |
| c-2-BUTENE | 3.9 | 13.7 | 2.5 | 1.6 | 1.4 | 3.0 | 2.1 | 1.5 |
| 1-PENTENE | 3.9 | 8.5 | 2.7 | 1.6 | 1.9 | 3.2 | 2.0 | 1.6 |
| 2-METHYL-1-BUTENE | 6.4 | 12.1 | 4.2 | 2.5 | 2.4 | 5.3 | 2.9 | 2.4 |
| ISOPRENE | 2.7 | 3.2 | 3.9 | 3.5 | 1.7 | 2.7 | 1.5 | 1.5 |
| t-2-PENTENE | 7.4 | 12.7 | 4.2 | 2.6 | 5.9 | 5.6 | 3.7 | 1.2 |
| c-2-PENTENE | 9.5 | 16.4 | 5.2 | 3.1 | 2.4 | 7.3 | 4.7 | 2.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 3.9 | 2.7 | 0.7 | 0.4 | * | 1.8 | 2.2 | 0.3 |
| 2-METHYL-2-PENTENE | 4.0 | 3.8 | 1.8 | 1.1 | 1.7 | 2.8 | 1.7 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.2 | 3.8 | 1.1 | 0.9 | 1.5 | 4.1 | 2.3 | 1.6 |
| a-PINENE | 1.1 | 5.3 | 2.5 | 3.9 | 5.7 | 5.9 | 1.7 | 1.2 |
| SUM OTHER OLEFINS | 65.1 | 60.9 | 19.6 | 13.4 | 52.8 | 41.2 | 22.2 | 13.1 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 27.3 | 26.0 | 19.9 | 12.4 | 14.1 | 20.8 | 12.5 | 14.5 |
| TOLUENE | 68.5 | 70.4 | 57.1 | 35.0 | 51.9 | 65.4 | 37.9 | 37.7 |
| ETHYLBENZENE | 13.5 | 15.5 | 9.5 | 6.6 | 8.2 | 13.9 | 7.3 | 7.4 |
| m&p-XYLENE | 41.4 | 42.4 | 27.2 | 18.7 | 23.0 | 39.9 | 21.0 | 20.7 |
| o-XYLENE | 14.2 | 15.4 | 10.8 | 8.2 | 7.4 | 15.1 | 8.5 | 8.3 |
| n-PROPYLBENZENE | 3.9 | 3.4 | 2.8 | 1.9 | 2.1 | 3.5 | 1.6 | 1.9 |
| m-ETHYLTOLUENE | 13.1 | 11.2 | 9.0 | 6.1 | 6.4 | 11.9 | 6.6 | 6.9 |
| p-ETHYLTOLUENE | 7.0 | 5.5 | 4.6 | 3.1 | 3.6 | 6.0 | 3.1 | 3.6 |
| 1,3,5-TRIMETHYLBENZENE | 7.6 | 5.7 | 4.1 | 3.5 | 3.4 | 7.1 | 3.9 | 2.3 |
| o-ETHYLTOLUENE | 6.8 | 6.7 | 4.5 | 3.2 | 3.7 | 5.9 | 3.6 | 3.7 |
| 1,2,4-TRIMETHYLBENZENE | 21.4 | 28.7 | 18.0 | 12.7 | 9.2 | 19.6 | 21.5 | 14.0 |
| n-DECANE | 6.8 | 4.9 | 3.9 | 2.4 | 2.4 | 4.8 | 1.7 | 2.0 |
| 1,4-DIETHYLBENZENE | 7.3 | 5.0 | 4.2 | 2.3 | 3.3 | 6.1 | 2.6 | 2.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.9 | 4.6 | 2.8 | 1.5 | 3.0 | 2.9 | 1.8 | 2.8 |
| SUM OTHER AROMATICS | 69.3 | 59.0 | 47.5 | 27.9 | 67.3 | 50.7 | 26.4 | 30.7 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 39.9 | 27.9 | 16.8 | 13.9 | 26.8 | 28.8 | 17.0 | 12.3 |
| SUM UNKNOWNS | 18.2 | 4.6 | 2.1 | 2.3 | 26.0 | 10.8 | 8.5 | 2.1 |
| SUM PARAFFINS | 567.4 | 1130.2 | 363.0 | 229.4 | 414.9 | 526.1 | 310.8 | 297.5 |
| SUM OLEFINS | 203.0 | 254.3 | 99.0 | 63.7 | 130.0 | 153.8 | 91.4 | 59.4 |
| SUM AROMATICS | 312.8 | 305.0 | 226.4 | 146.1 | 209.7 | 274.3 | 160.6 | 159.8 |
| SUM HYDROCARBONS | 1141.5 | 1724.3 | 707.4 | 455.7 | 807.7 | 994.0 | 588.4 | 531.4 |

## TABLE A-21e. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date<br>2172<br>85/08/21 | 2278<br>85/08/28 | 2303<br>86/08/15 | 2333<br>84/09/19 | 2359CS0<br>85/09/05 | 2366<br>85/09/03 | 2451<br>85/09/12 | 2478<br>86/08/26 |
|---|---|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | | | |
| ETHANE | 26.9 | 40.9 | 11.7 | 55.3 | 12.6 | 26.1 | 27.2 | 16.6 |
| PROPANE | 32.6 | 35.7 | 9.5 | 64.0 | 7.9 | 45.1 | 23.7 | 11.9 |
| ISOBUTANE | 8.6 | 17.9 | 4.8 | 43.9 | 4.0 | 10.2 | 11.9 | 9.5 |
| n-BUTANE | 29.2 | 41.6 | 16.4 | 170.8 | 16.9 | 32.8 | 29.2 | 35.9 |
| ISOPENTANE | 31.9 | 58.8 | 25.0 | 141.5 | 25.0 | 45.7 | 42.5 | 51.9 |
| n-PENTANE | 18.9 | 32.6 | 75.6 | 91.0 | 12.3 | 26.0 | 22.9 | 26.2 |
| 2,2-DIMETHYLBUTANE | 1.2 | 2.5 | 0.6 | 2.4 | 0.6 | 1.6 | 1.5 | 1.4 |
| CYCLOPENTANE | 1.9 | 2.7 | 1.2 | 7.6 | 1.0 | 2.9 | 1.8 | 2.3 |
| 2,3-DIMETHYLBUTANE | 2.5 | 5.2 | 2.2 | 10.1 | 2.0 | 3.9 | 3.4 | 4.3 |
| 2-METHYLPENTANE | 10.1 | 21.6 | 7.6 | 41.9 | 7.8 | 15.8 | 13.5 | 15.6 |
| 3-METHYLPENTANE | 7.4 | 13.8 | 5.7 | 32.3 | 5.3 | 9.8 | 9.2 | 11.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.1 | 16.4 | 19.0 | 34.9 | 6.3 | 12.6 | 10.9 | 11.5 |
| METHYLCYCLOPENTANE | 4.2 | 9.1 | 4.8 | 21.1 | 3.3 | 6.9 | 5.6 | 6.3 |
| 2,4-DIMETHYLPENTANE | 1.2 | 2.7 | 0.9 | 5.1 | 0.9 | 2.1 | 1.7 | 2.0 |
| CYCLOHEXANE | 1.6 | 3.2 | 19.1 | 6.1 | 1.1 | 2.4 | 1.9 | 1.6 |
| 2-METHYLHEXANE | 7.1 | 14.1 | 4.3 | 19.9 | 5.3 | 11.3 | 9.5 | 8.0 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 4.1 | 8.1 | 3.6 | 15.2 | 2.8 | 5.9 | 5.4 | 5.9 |
| 2,2,4-TRIMETHYLPENTANE | 5.2 | 13.1 | 3.7 | 22.6 | 3.8 | 8.3 | 6.4 | 7.7 |
| n-HEPTANE | 3.2 | 7.8 | 3.3 | 16.3 | 2.3 | 6.0 | 4.3 | 6.3 |
| METHYLCYCLOHEXANE | 2.5 | 5.2 | 1.9 | 11.1 | 2.1 | 4.0 | 3.5 | 3.2 |
| 2,5-DIMETHYLHEXANE | 1.4 | 2.8 | 1.0 | 4.8 | 1.0 | 2.2 | 1.9 | 2.1 |
| 2,4-DIMETHYLHEXANE | 1.4 | 2.9 | 1.0 | 4.9 | 0.9 | 2.1 | 1.9 | 1.8 |
| 2,3,4-TRIMETHYLPENTANE | 2.4 | 5.0 | 1.6 | 8.1 | 1.8 | 3.5 | 3.2 | 3.2 |
| 2-METHYLHEPTANE | 2.1 | 4.2 | 0.9 | 6.7 | 0.8 | 3.2 | 3.2 | 1.9 |
| 3-METHYLHEPTANE | 2.1 | 4.2 | 1.6 | 6.6 | 1.3 | 3.1 | 2.5 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 1.5 | 0.6 | 2.4 | 0.5 | 1.1 | 0.8 | 1.9 |
| n-OCTANE | 2.5 | 3.7 | 2.0 | 6.2 | 1.6 | 3.2 | 2.5 | 3.3 |
| 2,4-DIMETHYLHEPTANE | 1.8 | * | 1.6 | 0.5 | 1.1 | * | 0.9 | 3.8 |
| 4-METHYLOCTANE | 1.4 | 2.6 | 1.4 | 5.5 | 1.2 | 2.0 | 1.4 | 2.3 |
| 3-METHYLOCTANE | 1.3 | 2.2 | 1.1 | 3.0 | 0.9 | 1.5 | 1.3 | 1.2 |
| n-NONANE | 1.1 | 2.2 | 2.4 | 4.5 | 1.9 | 1.6 | 1.9 | 1.7 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.0 | 6.6 | 4.2 | 5.4 | 4.3 | 5.4 | 5.2 | 3.5 |
| SUM OTHER PARAFFINS | 16.7 | 39.8 | 30.9 | 81.4 | 16.6 | 33.1 | 18.9 | 17.0 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** |  |  |  |  |  |  |  |  |
| ETHYLENE | 16.1 | 35.7 | 10.0 | 51.0 | 13.8 | 26.9 | 20.1 | 17.7 |
| PROPENE | 6.6 | 17.3 | 3.2 | 18.4 | 4.2 | 11.0 | 6.6 | 6.2 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.5 | 11.1 | 3.1 | 16.4 | 3.8 | 8.2 | 5.8 | 6.6 |
| 1,3-BUTADIENE | 1.5 | 3.4 | 0.2 | 4.3 | 0.9 | 2.7 | 0.7 | 1.2 |
| t-2-BUTENE | 1.7 | 3.5 | 0.9 | 10.0 | 1.3 | 2.6 | * | 3.0 |
| c-2-BUTENE | 1.2 | 2.2 | 0.9 | 7.7 | 0.9 | 1.7 | 1.5 | 2.2 |
| 1-PENTENE | 1.2 | 2.1 | 0.9 | 7.4 | 0.9 | * | 1.6 | 2.1 |
| 2-METHYL-1-BUTENE | 1.6 | 5.6 | 1.3 | 9.4 | 1.5 | 3.0 | 2.6 | 3.1 |
| ISOPRENE | 0.9 | * | 0.0 | 3.1 | * | * | 1.2 | 1.0 |
| t-2-PENTENE | 2.3 | * | 2.3 | 10.4 | 2.1 | 3.4 | 2.8 | 4.4 |
| c-2-PENTENE | * | * | 3.1 | 9.3 | 2.3 | 4.3 | 3.7 | 4.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.2 | 1.7 | * | * | 0.2 | 1.5 | 0.5 | 0.6 |
| 2-METHYL-2-PENTENE | 0.8 | 2.0 | 0.7 | 4.3 | 0.7 | 1.6 | 1.5 | 1.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.6 | 2.2 | 3.6 | 4.1 | 3.8 | 1.1 | 2.0 | 3.5 |
| a-PINENE | 3.2 | 1.8 | 2.9 | 1.7 | 2.8 | 2.4 | 2.5 | 2.6 |
| SUM OTHER OLEFINS | 25.6 | 64.1 | 12.2 | 85.1 | 12.9 | 35.4 | 22.6 | 16.8 |
| **AROMATICS** |  |  |  |  |  |  |  |  |
| BENZENE | 9.4 | 19.0 | 7.3 | 31.0 | 5.8 | 14.0 | 12.1 | 13.0 |
| TOLUENE | 23.0 | 54.1 | 24.1 | 79.3 | 21.6 | 35.4 | 34.0 | 41.6 |
| ETHYLBENZENE | 4.2 | 9.9 | 5.7 | 14.0 | 3.7 | 7.4 | 6.0 | 8.1 |
| m&p-XYLENE | 13.1 | 29.1 | 16.2 | 42.9 | 11.2 | 22.2 | 17.6 | 22.4 |
| o-XYLENE | 6.9 | 12.6 | 7.4 | 14.9 | 4.7 | 9.6 | 7.2 | 8.6 |
| n-PROPYLBENZENE | 2.0 | 3.5 | 1.6 | 3.6 | 1.0 | 1.7 | 2.5 | 2.9 |
| m-ETHYLTOLUENE | 7.4 | 13.2 | 5.2 | 12.0 | 3.9 | 7.2 | 7.3 | 7.0 |
| p-ETHYLTOLUENE | 3.5 | 6.2 | 3.2 | 6.1 | 2.0 | 3.6 | 3.6 | 3.7 |
| 1,3,5-TRIMETHYLBENZENE | 3.8 | 7.3 | 3.4 | 7.1 | 2.9 | 4.4 | 4.4 | 3.2 |
| o-ETHYLTOLUENE | 3.0 | 6.1 | 3.2 | 6.4 | 2.5 | 3.2 | 3.2 | 3.9 |
| 1,2,4-TRIMETHYLBENZENE | 11.0 | 24.9 | 12.5 | 19.3 | 11.9 | 16.0 | 13.0 | 13.4 |
| n-DECANE | 2.5 | 5.3 | 2.5 | 7.1 | 2.0 | 3.3 | 2.0 | 2.1 |
| 1,4-DIETHYLBENZENE | 2.0 | 5.0 | 2.6 | 6.5 | 1.6 | 2.9 | 2.2 | 2.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.0 | 3.1 | 2.4 | 4.9 | * | 2.7 | * | 1.3 |
| SUM OTHER AROMATICS | 21.9 | 52.2 | 36.4 | 78.9 | 20.4 | 38.0 | 19.5 | 28.5 |
| **SUMMARY** |  |  |  |  |  |  |  |  |
| ACETYLENE | 12.9 | 25.9 | 7.2 | 39.0 | 6.4 | 19.8 | 16.6 | 16.0 |
| SUM UNKNOWNS | 6.0 | 10.1 | 3.1 | 2.2 | 1.7 | 10.3 | 2.6 | 0.2 |
| SUM PARAFFINS | 247.7 | 432.1 | 272.6 | 954.4 | 158.8 | 342.9 | 283.1 | 286.7 |
| SUM OLEFINS | 70.8 | 153.3 | 46.0 | 243.2 | 52.8 | 106.4 | 76.5 | 77.6 |
| SUM AROMATICS | 115.4 | 252.3 | 134.3 | 334.6 | 95.5 | 172.2 | 135.3 | 162.9 |
| SUM HYDROCARBONS | 452.9 | 873.8 | 471.4 | 1573.7 | 315.3 | 651.9 | 514.3 | 543.6 |

### TABLE A-21f. Hydrocarbon concentration data for FORT WORTH, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2484<br>84/09/27 | 2572<br>85/09/20 | 2620<br>86/09/03 | 2631<br>85/09/26 | 2734<br>86/09/10 | 2735<br>86/09/10 | 2798<br>86/09/16 | 2963<br>86/09/26 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 61.6 | 35.2 | 31.5 | 75.0 | 14.4 | 15.0 | 37.1 | 10.3 |
| PROPANE | 60.9 | 30.0 | 38.9 | 79.1 | 11.4 | 11.2 | 37.3 | 8.7 |
| ISOBUTANE | 15.7 | 10.9 | 21.2 | 27.2 | 5.3 | 5.4 | 14.6 | 4.0 |
| n-BUTANE | 55.2 | 35.2 | 44.8 | 72.6 | 17.8 | 18.5 | 52.7 | 14.8 |
| ISOPENTANE | 40.2 | 46.1 | 64.0 | 67.6 | 24.0 | 24.7 | 76.1 | 23.9 |
| n-PENTANE | 29.8 | 26.4 | 30.4 | 33.0 | 11.8 | 12.8 | 40.2 | 11.7 |
| 2,2-DIMETHYLBUTANE | 3.0 | 1.4 | 1.5 | 1.1 | 0.6 | 0.6 | 1.9 | 0.6 |
| CYCLOPENTANE | 2.6 | 2.3 | 3.0 | 2.4 | 1.3 | 1.2 | 3.8 | 1.0 |
| 2,3-DIMETHYLBUTANE | 4.7 | 3.8 | 5.2 | 3.1 | 1.8 | 1.9 | 6.9 | 1.9 |
| 2-METHYLPENTANE | 19.6 | 15.0 | 19.5 | 13.6 | 7.3 | 7.5 | 24.6 | 8.3 |
| 3-METHYLPENTANE | 14.8 | 9.6 | 13.2 | 8.3 | 4.6 | 5.1 | 16.4 | 8.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 15.4 | 12.0 | 13.4 | 11.3 | 5.1 | 5.3 | 16.4 | 6.8 |
| METHYLCYCLOPENTANE | 8.8 | 6.5 | 8.2 | 5.8 | 3.1 | 3.2 | 10.2 | 3.4 |
| 2,4-DIMETHYLPENTANE | 2.2 | 1.8 | 2.4 | 1.4 | 1.0 | 1.0 | 3.7 | 1.0 |
| CYCLOHEXANE | 4.1 | 2.4 | 2.4 | 2.2 | 0.9 | 1.0 | 2.7 | 0.9 |
| 2-METHYLHEXANE | 8.5 | 11.1 | 11.8 | 7.0 | 4.2 | 4.1 | 14.4 | 6.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 6.9 | 6.3 | 8.0 | 4.2 | 3.5 | 3.1 | 10.5 | 3.5 |
| 2,2,4-TRIMETHYLPENTANE | 10.5 | 7.2 | 10.4 | 4.7 | 3.7 | 3.8 | 13.6 | 4.0 |
| n-HEPTANE | 6.9 | 6.0 | 6.1 | 4.5 | 3.5 | 3.6 | 9.6 | 2.7 |
| METHYLCYCLOHEXANE | 4.7 | 4.2 | 4.7 | 3.5 | 2.1 | 2.1 | 5.7 | 2.1 |
| 2,5-DIMETHYLHEXANE | 2.1 | 2.0 | 2.6 | 0.5 | 0.4 | 0.4 | 4.3 | 1.0 |
| 2,4-DIMETHYLHEXANE | 2.1 | 2.0 | 2.7 | 1.3 | 0.9 | 1.0 | 3.9 | 1.0 |
| 2,3,4-TRIMETHYLPENTANE | 3.5 | 3.4 | 4.5 | 2.3 | 1.5 | 1.5 | 6.4 | 2.0 |
| 2-METHYLHEPTANE | 2.9 | 3.0 | 3.5 | 2.7 | 1.4 | 1.6 | 4.5 | 0.8 |
| 3-METHYLHEPTANE | 2.9 | 3.0 | 3.6 | 2.0 | 1.3 | 1.4 | 4.8 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.1 | 2.0 | 0.6 | 0.9 | 1.0 | 4.1 | 0.5 |
| n-OCTANE | 2.5 | 3.1 | 3.8 | 1.9 | 1.3 | 1.4 | 4.4 | 1.8 |
| 2,4-DIMETHYLHEPTANE | * | 0.9 | 5.9 | 1.9 | 1.2 | 1.2 | 4.8 | 1.8 |
| 4-METHYLOCTANE | 1.2 | 1.7 | 2.3 | 0.9 | 1.5 | 1.4 | 2.5 | 1.2 |
| 3-METHYLOCTANE | 1.1 | 1.3 | 1.9 | 1.0 | 0.8 | 0.8 | 1.9 | 1.3 |
| n-NONANE | 1.4 | 2.5 | 3.3 | 0.9 | 1.7 | 1.7 | 2.5 | 1.3 |
| 4-METHYLNONANE | * | * | 1.6 | * | * | * | * | * |
| n-DECANE | 1.4 | 6.1 | 5.9 | 2.8 | 3.4 | 3.6 | 5.1 | 1.9 |
| SUM OTHER PARAFFINS | 27.4 | 27.2 | 37.0 | 12.5 | 12.8 | 13.6 | 32.2 | 15.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 27.1 | 25.1 | 29.2 | 22.8 | 13.0 | 15.1 | 49.7 | 13.4 |
| PROPENE | 8.1 | 8.7 | 9.4 | 4.0 | 3.4 | 4.3 | 15.4 | 5.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 6.0 | 6.7 | 7.9 | 8.6 | 3.0 | 3.5 | 12.7 | 5.2 |
| 1,3-BUTADIENE | 1.7 | 2.0 | 0.6 | 0.8 | 0.2 | 0.9 | 3.4 | 1.0 |
| t-2-BUTENE | 1.5 | 2.4 | 2.5 | 5.9 | 1.0 | 1.4 | 4.8 | 1.4 |
| c-2-BUTENE | 1.4 | 1.7 | 2.2 | 4.4 | 0.9 | 1.0 | 3.5 | 1.0 |
| 1-PENTENE | 1.8 | * | 2.4 | 1.8 | 0.1 | 1.0 | 3.6 | 1.2 |
| 2-METHYL-1-BUTENE | 2.6 | 3.1 | 3.7 | 2.7 | 0.1 | 1.4 | 5.3 | 1.7 |
| ISOPRENE | 1.4 | * | 1.1 | 0.5 | 0.8 | 0.9 | 2.4 | 0.5 |
| t-2-PENTENE | 2.9 | 3.3 | 3.9 | 3.1 | 1.0 | 0.6 | 6.4 | 1.9 |
| c-2-PENTENE | 3.9 | 4.2 | 4.6 | 3.8 | 2.9 | 3.3 | 7.5 | 2.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.6 | 0.7 | * | 0.5 | 0.2 | 0.3 | 1.3 | 0.2 |
| 2-METHYL-2-PENTENE | 1.6 | 1.5 | 1.9 | 1.1 | 0.5 | 0.6 | 2.8 | 0.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.7 | 3.5 | 2.7 | 0.7 | 1.0 | 1.0 | 2.0 | 2.3 |
| a-PINENE | 0.7 | 1.1 | 4.4 | 0.9 | * | * | 2.6 | 1.6 |
| SUM OTHER OLEFINS | 37.0 | 21.3 | 23.1 | 13.2 | 5.6 | 5.2 | 34.0 | 13.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 13.5 | 13.5 | 18.0 | 9.1 | 7.2 | 7.5 | 26.7 | 7.7 |
| TOLUENE | 30.3 | 38.8 | 57.0 | 20.8 | 20.5 | 21.2 | 67.3 | 26.1 |
| ETHYLBENZENE | 5.9 | 7.0 | 12.0 | 3.9 | 3.7 | 3.8 | 13.9 | 4.7 |
| m&p-XYLENE | 18.0 | 21.8 | 32.5 | 12.3 | 11.7 | 11.9 | 39.6 | 14.0 |
| o-XYLENE | 6.5 | 9.3 | 12.1 | 4.4 | 4.4 | 4.1 | 14.4 | 6.5 |
| n-PROPYLBENZENE | 1.6 | 2.0 | 4.9 | 0.9 | 1.3 | 1.3 | 6.5 | 1.2 |
| m-ETHYLTOLUENE | 6.3 | 7.6 | 13.6 | 3.5 | 4.5 | 4.6 | 14.3 | 4.3 |
| p-ETHYLTOLUENE | 3.2 | 3.9 | 7.1 | 1.7 | 2.6 | 2.6 | 7.4 | 2.1 |
| 1,3,5-TRIMETHYLBENZENE | 3.5 | 4.4 | 6.7 | 2.0 | 1.4 | 2.2 | 8.2 | 2.8 |
| o-ETHYLTOLUENE | 3.1 | 3.5 | 6.7 | 1.5 | 2.6 | 2.3 | 6.4 | 2.1 |
| 1,2,4-TRIMETHYLBENZENE | 9.9 | 21.0 | 23.6 | 11.4 | 9.5 | 9.3 | 23.9 | 8.1 |
| n-DECANE | 5.0 | 2.4 | 5.6 | 1.1 | 1.5 | 1.6 | 5.6 | 2.1 |
| 1,4-DIETHYLBENZENE | 3.2 | 2.7 | 4.1 | 1.2 | 1.7 | 1.7 | 6.1 | 2.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.8 | 1.6 | 3.7 | * | 1.8 | 1.2 | 3.2 | 1.8 |
| SUM OTHER AROMATICS | 44.3 | 28.8 | 45.8 | 9.7 | 16.0 | 12.9 | 48.8 | 26.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 26.5 | 16.3 | 20.9 | 9.7 | 6.9 | 5.3 | 18.9 | 7.3 |
| SUM UNKNOWNS | 6.9 | 3.9 | 2.2 | 2.8 | 1.9 | 1.4 | 0.4 | 5.4 |
| SUM PARAFFINS | 427.0 | 332.0 | 422.8 | 460.2 | 157.8 | 163.2 | 481.1 | 156.6 |
| SUM OLEFINS | 100.6 | 85.8 | 100.1 | 75.3 | 34.4 | 40.9 | 158.2 | 53.8 |
| SUM AROMATICS | 156.6 | 168.8 | 254.3 | 84.1 | 91.3 | 88.8 | 292.9 | 113.0 |
| SUM HYDROCARBONS | 717.7 | 607.0 | 800.5 | 632.3 | 292.4 | 299.7 | 951.6 | 336.2 |

TABLE A-22a. Hydrocarbon concentration data for HOUSTON 1, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1169RA0 86/06/12 | 1170 85/06/14 | 1246 86/06/17 | 1248 85/06/21 | 1311 85/06/26 | 1339 86/06/23 | 1370 85/07/01 | 1464 85/07/09 |
| PARAFFINS | | | | | | | | |
| ETHANE | 198.2 | 84.7 | 65.4 | 41.3 | 128.9 | 47.5 | 123.5 | 15.9 |
| PROPANE | 123.2 | 101.6 | 203.2 | 83.6 | 271.7 | 47.5 | 67.0 | 11.9 |
| ISOBUTANE | 59.1 | 51.9 | 186.3 | 217.1 | 183.5 | 29.7 | 24.7 | 16.4 |
| n-BUTANE | 192.4 | 83.9 | 445.3 | 79.2 | 564.7 | 75.2 | 51.5 | 15.9 |
| ISOPENTANE | 205.9 | 125.2 | 160.8 | 64.5 | 368.5 | 82.9 | 59.7 | 17.0 |
| n-PENTANE | 78.1 | 40.8 | 70.9 | 27.9 | 134.8 | 36.8 | 23.6 | 9.7 |
| 2,2-DIMETHYLBUTANE | 6.6 | 3.1 | 4.7 | 2.1 | 9.2 | 2.8 | 2.9 | 0.7 |
| CYCLOPENTANE | 9.7 | 4.2 | 7.4 | 2.6 | 13.4 | 3.7 | 3.0 | 1.1 |
| 2,3-DIMETHYLBUTANE | 14.0 | 5.5 | 10.3 | 3.9 | 22.1 | 5.7 | 5.1 | 1.2 |
| 2-METHYLPENTANE | 64.5 | 24.3 | 39.8 | 15.5 | 75.5 | 21.6 | 25.5 | 4.5 |
| 3-METHYLPENTANE | 35.2 | 18.8 | 25.3 | 11.1 | 49.9 | 14.2 | 13.4 | 3.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 37.7 | 24.4 | 39.8 | 27.7 | 42.5 | 13.7 | 11.8 | 8.0 |
| METHYLCYCLOPENTANE | 23.8 | 10.6 | 20.0 | 9.2 | 29.4 | 8.7 | 8.2 | 3.0 |
| 2,4-DIMETHYLPENTANE | 6.5 | 3.1 | 4.0 | 3.5 | 12.1 | 2.5 | 2.2 | 0.4 |
| CYCLOHEXANE | 8.8 | 6.7 | 27.2 | 133.4 | 12.4 | 4.1 | 5.1 | 1.9 |
| 2-METHYLHEXANE | 31.9 | 10.3 | 16.1 | 6.3 | 19.5 | 10.5 | 11.0 | 2.9 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | 12.6 | * | * | * |
| 3-METHYLHEXANE | 17.5 | 11.1 | 10.6 | 4.2 | 29.9 | 6.9 | 7.7 | 1.6 |
| 2,2,4-TRIMETHYLPENTANE | 31.6 | 11.1 | 11.6 | 5.4 | 37.8 | 10.4 | 11.6 | 1.3 |
| n-HEPTANE | 15.5 | 8.1 | 15.7 | 4.5 | 16.8 | 4.6 | 6.8 | 2.2 |
| METHYLCYCLOHEXANE | 12.5 | 7.5 | 17.4 | 4.0 | 18.0 | 4.9 | 5.8 | 2.9 |
| 2,5-DIMETHYLHEXANE | 5.4 | 2.4 | 3.4 | 1.2 | 6.8 | 2.1 | 2.4 | 0.5 |
| 2,4-DIMETHYLHEXANE | 6.2 | 2.8 | 2.9 | 1.4 | 8.3 | 2.4 | 2.8 | 0.3 |
| 2,3,4-TRIMETHYLPENTANE | 10.1 | 3.4 | 4.1 | 1.6 | 9.6 | 3.8 | 4.0 | 0.3 |
| 2-METHYLHEPTANE | 9.4 | 4.3 | 5.9 | 1.6 | 8.2 | 2.4 | 4.2 | 1.0 |
| 3-METHYLHEPTANE | 8.0 | 3.1 | 3.9 | 1.7 | 8.3 | 2.6 | 3.4 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 3.8 | 1.6 | 1.6 | 0.4 | 3.6 | 1.7 | 1.1 | 0.1 |
| n-OCTANE | 7.1 | 5.5 | 5.3 | 1.8 | 6.8 | 1.9 | 3.1 | 1.5 |
| 2,4-DIMETHYLHEPTANE | 2.0 | * | 0.9 | * | 0.6 | 0.8 | * | * |
| 4-METHYLOCTANE | 4.2 | * | 2.5 | 0.9 | 4.5 | 2.2 | 2.2 | 0.2 |
| 3-METHYLOCTANE | 3.6 | 1.7 | 1.6 | 1.1 | 3.3 | 1.3 | 2.0 | 0.4 |
| n-NONANE | 5.1 | 8.5 | 2.5 | 4.9 | 3.9 | 1.6 | 2.6 | 4.6 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 9.4 | 8.4 | 2.1 | 1.9 | 5.1 | 1.7 | 4.5 | 0.8 |
| SUM OTHER PARAFFINS | 80.5 | 166.7 | 36.7 | 28.1 | 134.0 | 31.7 | 52.6 | 43.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 57.5 | 61.8 | 40.4 | 8.1 | 22.1 | 34.1 | 41.7 | 8.8 |
| PROPENE | 20.4 | 28.5 | 51.9 | 320.0 | 60.8 | 14.4 | 21.5 | 6.2 |
| 2-METHYLPROPYLENE, BUTENE-1 | 22.2 | 17.0 | 14.0 | 11.2 | 42.7 | 11.0 | 5.6 | 2.9 |
| 1,3-BUTADIENE | 3.7 | 7.4 | 5.6 | 14.5 | 3.3 | 2.4 | 1.7 | 0.5 |
| t-2-BUTENE | 9.0 | 3.6 | 9.4 | 5.4 | 39.0 | 3.7 | 2.2 | 0.9 |
| c-2-BUTENE | 6.3 | 2.2 | 7.2 | 4.4 | 32.7 | 2.3 | 1.3 | 0.6 |
| 1-PENTENE | 6.6 | 0.9 | 5.9 | 1.9 | 23.1 | 2.5 | 1.8 | 0.7 |
| 2-METHYL-1-BUTENE | 10.2 | 3.0 | 8.6 | 3.1 | 28.7 | 3.4 | 2.8 | 0.9 |
| ISOPRENE | 5.9 | 2.6 | 3.7 | 1.1 | 4.5 | 4.5 | 3.3 | 1.1 |
| t-2-PENTENE | 12.9 | 3.1 | 9.5 | 3.4 | 34.1 | 3.9 | 3.0 | 1.2 |
| c-2-PENTENE | 15.5 | 4.1 | 9.8 | 3.6 | 36.5 | 4.8 | 0.7 | 0.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 10.1 | * | * | * | 10.1 | 0.6 | 3.0 | * |
| 2-METHYL-2-PENTENE | 4.3 | 1.3 | 2.3 | 1.0 | 6.9 | 1.4 | 1.0 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 5.3 | 2.2 | 1.0 | 1.5 | 1.5 | 1.4 | 2.3 | 0.5 |
| a-PINENE | 7.8 | 27.2 | 1.1 | 3.9 | 5.0 | 4.7 | 6.0 | 2.9 |
| SUM OTHER OLEFINS | 45.7 | 76.4 | 35.4 | 80.3 | 125.5 | 22.1 | 28.6 | 14.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 41.5 | 50.9 | 112.3 | 31.7 | 29.9 | 19.1 | 15.2 | 9.4 |
| TOLUENE | 119.1 | 41.5 | 65.3 | 27.3 | 78.9 | 42.1 | 33.4 | 9.4 |
| ETHYLBENZENE | 23.2 | 41.6 | 8.7 | 5.2 | 11.7 | 7.9 | 6.8 | 1.8 |
| m&p-XYLENE | 71.5 | 23.5 | 26.5 | 15.9 | 41.2 | 24.1 | 20.7 | 5.1 |
| o-XYLENE | 28.3 | 10.4 | 10.4 | 5.9 | 14.0 | 9.7 | 8.2 | 1.7 |
| n-PROPYLBENZENE | 8.1 | 3.2 | 2.8 | 1.0 | 4.2 | 1.7 | 3.2 | 0.1 |
| m-ETHYLTOLUENE | 18.9 | 11.5 | 10.2 | 3.0 | 11.2 | 7.2 | 6.3 | 0.9 |
| p-ETHYLTOLUENE | 9.9 | 4.6 | 5.1 | 2.3 | 7.0 | 3.4 | 3.4 | 0.4 |
| 1,3,5-TRIMETHYLBENZENE | 11.2 | 4.7 | 5.8 | 2.0 | 6.5 | 3.8 | 4.4 | 0.6 |
| o-ETHYLTOLUENE | 10.0 | 9.8 | 4.0 | 1.6 | 6.1 | 3.4 | 3.6 | 0.4 |
| 1,2,4-TRIMETHYLBENZENE | 37.9 | 13.6 | 20.7 | 5.8 | 17.3 | 19.0 | 11.3 | 2.0 |
| n-DECANE | 11.1 | * | 3.2 | 42.9 | 11.0 | 3.2 | 3.9 | 0.3 |
| 1,4-DIETHYLBENZENE | 8.4 | 4.7 | 2.4 | 1.5 | 6.3 | 3.1 | 4.0 | 0.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 6.7 | 7.7 | 2.3 | 1.7 | 5.3 | * | 5.4 | * |
| SUM OTHER AROMATICS | 107.1 | 925.4 | 58.2 | 55.6 | 70.3 | 24.1 | 75.9 | 15.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 42.8 | 16.4 | 8.7 | 114.3 | 7.6 | 16.7 | 12.9 | 2.3 |
| SUM UNKNOWNS | 11.4 | 14.2 | 2.0 | 9.8 | 13.1 | 5.1 | 12.0 | 12.7 |
| SUM PARAFFINS | 1328.6 | 846.7 | 1456.2 | 794.9 | 2257.4 | 491.7 | 556.4 | 177.3 |
| SUM OLEFINS | 244.1 | 242.0 | 206.3 | 464.0 | 477.0 | 118.0 | 127.2 | 43.2 |
| SUM AROMATICS | 513.4 | 1154.0 | 338.5 | 204.0 | 321.8 | 172.3 | 206.3 | 48.3 |
| SUM HYDROCARBONS | 2140.4 | 2273.5 | 2011.7 | 1587.3 | 3077.4 | 803.9 | 915.0 | 284.2 |

TABLE A-22b. Hydrocarbon concentration data for HOUSTON 1, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1481<br>86/06/30 | 1564<br>85/07/12 | 1611<br>86/07/09 | 1638<br>85/07/17 | 1702<br>85/07/22 | 1745<br>86/07/17 | 1862<br>85/07/30 | 1921<br>85/08/05 |
| PARAFFINS | | | | | | | | |
| ETHANE | 44.7 | 94.9 | 101.8 | 78.9 | 42.6 | 47.9 | 30.5 | 68.7 |
| PROPANE | 43.9 | 57.1 | 103.8 | 53.7 | 81.0 | 52.5 | 37.0 | 47.6 |
| ISOBUTANE | 21.3 | 22.1 | 59.7 | 21.7 | 37.3 | 33.2 | 13.5 | 19.6 |
| n-BUTANE | 66.0 | 61.7 | 165.0 | 41.5 | 137.2 | 138.4 | 20.7 | 36.0 |
| ISOPENTANE | 56.4 | 68.0 | 119.6 | 46.1 | 57.7 | 60.5 | 27.2 | 41.6 |
| n-PENTANE | 42.0 | 29.1 | 58.3 | 21.0 | 16.9 | 33.2 | 11.4 | 17.5 |
| 2,2-DIMETHYLBUTANE | 3.0 | 4.5 | 6.5 | 2.5 | 1.6 | 2.4 | 1.1 | 1.7 |
| CYCLOPENTANE | 3.2 | 4.6 | 7.3 | 3.0 | 1.9 | 3.2 | 1.3 | 2.0 |
| 2,3-DIMETHYLBUTANE | 3.2 | 7.2 | 10.0 | 3.9 | 4.7 | 4.5 | 2.1 | 3.5 |
| 2-METHYLPENTANE | 20.4 | 29.7 | 46.8 | 17.2 | 29.3 | 44.9 | 24.0 | 26.7 |
| 3-METHYLPENTANE | 9.6 | 16.1 | 31.6 | 9.9 | * | 33.9 | 5.4 | 11.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 16.1 | 17.6 | 32.8 | 14.3 | 11.2 | 13.4 | 6.9 | 12.2 |
| METHYLCYCLOPENTANE | 6.1 | 10.6 | 16.7 | 7.2 | 7.3 | 8.5 | 4.1 | 7.5 |
| 2,4-DIMETHYLPENTANE | 1.3 | 2.9 | 3.7 | 1.3 | 1.9 | 1.9 | 0.9 | 1.7 |
| CYCLOHEXANE | 5.4 | 4.5 | 8.6 | 3.9 | 2.8 | 4.4 | 2.6 | 3.8 |
| 2-METHYLHEXANE | 8.2 | 17.0 | 16.1 | 8.5 | 10.3 | 15.3 | 7.9 | 15.8 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 7.1 | 10.2 | 11.5 | 4.7 | 6.2 | 8.1 | 4.9 | 12.0 |
| 2,2,4-TRIMETHYLPENTANE | 3.2 | 14.6 | 16.2 | 5.0 | 6.3 | 7.3 | 2.8 | 4.7 |
| n-HEPTANE | 10.9 | 9.7 | 10.3 | 4.7 | 6.2 | 8.0 | 5.2 | 13.3 |
| METHYLCYCLOHEXANE | 8.9 | 6.6 | 9.0 | 5.2 | 5.1 | 6.5 | 4.3 | 5.8 |
| 2,5-DIMETHYLHEXANE | 1.7 | 3.1 | 2.8 | 1.3 | 2.4 | 1.9 | 1.0 | 1.8 |
| 2,4-DIMETHYLHEXANE | 1.0 | 3.4 | 2.9 | 1.3 | 2.0 | 1.9 | 0.8 | 1.7 |
| 2,3,4-TRIMETHYLPENTANE | 1.4 | 4.9 | 4.6 | 1.4 | 3.7 | 3.0 | 1.4 | 1.8 |
| 2-METHYLHEPTANE | 4.0 | 4.6 | 6.1 | 1.8 | 3.2 | 3.3 | 1.0 | 2.5 |
| 3-METHYLHEPTANE | 2.5 | 4.4 | 3.9 | 2.0 | 3.6 | 3.2 | 1.7 | 2.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.8 | 1.3 | 2.0 | 0.5 | 1.4 | 1.3 | 0.4 | 0.7 |
| n-OCTANE | 8.0 | 6.2 | 3.8 | 2.1 | 4.2 | 3.8 | 1.9 | 3.2 |
| 2,4-DIMETHYLHEPTANE | 1.4 | * | 1.1 | * | * | 0.5 | * | * |
| 4-METHYLOCTANE | 5.0 | 3.9 | 2.6 | 1.3 | 1.8 | 2.3 | 0.8 | 1.6 |
| 3-METHYLOCTANE | 4.1 | 3.4 | 2.0 | 1.3 | 1.5 | 1.7 | 1.0 | 1.5 |
| n-NONANE | 6.3 | 7.5 | 2.3 | 1.7 | 2.3 | 2.4 | 1.0 | 2.0 |
| 4-METHYLNONANE | * | 2.4 | * | * | * | * | * | * |
| n-DECANE | 3.2 | 15.1 | 3.9 | 4.6 | 2.1 | 3.1 | 1.2 | 2.5 |
| SUM OTHER PARAFFINS | 52.2 | 79.2 | 51.5 | 25.9 | 58.4 | 38.5 | 15.6 | 25.8 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 26.9 | 46.5 | 44.4 | 12.7 | 23.8 | 25.7 | 10.8 | 19.5 |
| PROPENE | 20.8 | 20.2 | 28.5 | 8.0 | 63.6 | 21.1 | 53.9 | 26.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 6.2 | 12.1 | 15.5 | 5.2 | 18.5 | 14.7 | 3.7 | 7.0 |
| 1,3-BUTADIENE | 1.9 | 4.5 | 6.5 | 1.2 | 62.1 | 7.1 | 0.6 | 2.4 |
| t-2-BUTENE | 3.5 | 3.7 | 7.2 | 1.3 | 19.4 | 6.3 | 1.5 | 3.7 |
| c-2-BUTENE | 2.2 | 2.6 | 5.9 | 0.7 | 12.8 | 3.0 | 1.4 | 2.8 |
| 1-PENTENE | 3.8 | 3.4 | 5.8 | 1.0 | 5.7 | 2.8 | 0.9 | 2.2 |
| 2-METHYL-1-BUTENE | 3.0 | 4.1 | 6.7 | 2.4 | 10.0 | 3.5 | 1.6 | 3.4 |
| ISOPRENE | 13.2 | 4.3 | 6.3 | 1.2 | 2.6 | 7.3 | 1.1 | 1.0 |
| t-2-PENTENE | 3.5 | 5.2 | 7.2 | 2.0 | 11.5 | 4.0 | 1.9 | 4.0 |
| c-2-PENTENE | 3.5 | 6.6 | 8.5 | 1.9 | 13.4 | 4.1 | 2.2 | 5.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | * | 1.3 | 2.0 | 1.2 | 0.2 | 0.6 |
| 2-METHYL-2-PENTENE | 0.7 | 2.3 | 3.1 | 0.6 | 33.5 | 19.2 | 0.6 | 1.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.2 | 2.5 | 3.8 | 3.6 | 2.0 | 1.1 | 1.4 | 2.3 |
| a-PINENE | 3.7 | 1.9 | 3.1 | 5.8 | 3.4 | 4.0 | 3.8 | 3.5 |
| SUM OTHER OLEFINS | 27.9 | 44.4 | 32.4 | 16.9 | 147.4 | 13.5 | 13.8 | 44.2 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 21.4 | 20.7 | 23.7 | 9.2 | 7.4 | 15.1 | 5.1 | 8.0 |
| TOLUENE | 29.3 | 40.3 | 48.2 | 22.4 | 22.9 | 35.2 | 13.4 | 23.6 |
| ETHYLBENZENE | 6.5 | 9.1 | 10.1 | 3.8 | 7.6 | 6.6 | 2.7 | 4.8 |
| m&p-XYLENE | 23.4 | 30.4 | 28.1 | 12.4 | 23.9 | 21.0 | 8.1 | 17.1 |
| o-XYLENE | 9.2 | 11.6 | 11.1 | 5.1 | 9.2 | 9.4 | 3.8 | 7.2 |
| n-PROPYLBENZENE | 0.8 | 3.0 | 2.5 | 0.9 | 0.7 | 1.7 | 0.5 | 1.0 |
| m-ETHYLTOLUENE | 2.6 | 8.2 | 6.4 | 3.9 | 3.3 | 4.4 | 2.3 | 3.9 |
| p-ETHYLTOLUENE | 1.7 | 5.1 | 3.1 | 1.7 | 1.7 | 2.3 | 1.1 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 2.5 | 5.2 | 3.6 | 2.4 | 2.4 | 2.8 | 1.6 | 2.5 |
| o-ETHYLTOLUENE | 1.7 | 6.1 | 3.7 | 1.5 | 1.7 | 2.4 | 1.0 | 1.9 |
| 1,2,4-TRIMETHYLBENZENE | 7.8 | 17.0 | 18.4 | 6.3 | 5.8 | 13.9 | 4.1 | 7.2 |
| n-DECANE | 1.1 | 6.9 | 3.1 | 1.2 | 0.5 | 2.8 | 0.6 | 1.2 |
| 1,4-DIETHYLBENZENE | 1.0 | 4.0 | 3.1 | 1.4 | 1.2 | 1.7 | 0.7 | 1.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.4 | 7.3 | 4.0 | 4.9 | 1.1 | 2.6 | * | * |
| SUM OTHER AROMATICS | 23.7 | 61.2 | 32.7 | 30.1 | 29.2 | 34.7 | 31.4 | 31.4 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 3.6 | 14.7 | 13.5 | 7.5 | 8.2 | 12.4 | 4.2 | 3.9 |
| SUM UNKNOWNS | 9.4 | 6.7 | 2.9 | 2.9 | 6.4 | 2.2 | 4.2 | 5.5 |
| SUM PARAFFINS | 475.1 | 629.4 | 926.1 | 400.7 | 555.2 | 596.5 | 243.1 | 402.1 |
| SUM OLEFINS | 123.7 | 164.9 | 185.6 | 66.6 | 432.4 | 139.4 | 100.2 | 130.9 |
| SUM AROMATICS | 135.5 | 236.9 | 202.3 | 107.8 | 119.4 | 157.2 | 77.1 | 114.0 |
| SUM HYDROCARBONS | 747.6 | 1052.9 | 1330.5 | 585.7 | 1121.8 | 907.9 | 429.4 | 656.6 |

TABLE A-22c. Hydrocarbon concentration data for HOUSTON 1, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1947<br>85/08/02 | 2043<br>86/08/01 | 2087<br>85/08/14 | 2098<br>86/08/05 | 2208<br>85/08/22 | 2254<br>86/08/13 | 2311<br>85/08/29 | 2376<br>85/09/05 |
| PARAFFINS | | | | | | | | |
| ETHANE | 34.0 | 18.5 | 95.8 | 80.6 | 238.4 | 44.1 | 24.8 | 32.9 |
| PROPANE | 44.8 | 19.4 | 124.6 | 102.9 | 133.5 | 97.2 | 24.3 | 48.4 |
| ISOBUTANE | 13.3 | 11.1 | 63.4 | 68.6 | 57.5 | 57.2 | 13.3 | 60.2 |
| n-BUTANE | 21.2 | 26.8 | 86.0 | 122.9 | 113.7 | 92.4 | 33.7 | 167.1 |
| ISOPENTANE | 26.2 | 32.1 | 121.3 | 191.6 | 133.5 | 124.2 | 52.2 | 161.9 |
| n-PENTANE | 10.3 | 11.3 | 57.2 | 98.6 | 68.2 | 60.8 | 17.6 | 92.7 |
| 2,2-DIMETHYLBUTANE | 1.0 | 0.9 | 4.1 | 4.3 | 9.2 | 3.6 | 1.8 | 4.7 |
| CYCLOPENTANE | 1.2 | 1.2 | 5.4 | 6.5 | 11.0 | 5.1 | 2.5 | 6.2 |
| 2,3-DIMETHYLBUTANE | 2.1 | 2.4 | 7.9 | 8.0 | 12.9 | 6.7 | 3.7 | 7.3 |
| 2-METHYLPENTANE | 8.3 | 8.7 | 34.3 | 39.6 | 58.0 | 48.0 | 16.8 | 28.7 |
| 3-METHYLPENTANE | 4.9 | 7.1 | 17.7 | 18.5 | 35.4 | 16.5 | 9.6 | 15.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.7 | 6.8 | 21.4 | 22.2 | 40.4 | 22.3 | 8.6 | 22.7 |
| METHYLCYCLOPENTANE | 3.5 | 3.8 | 12.7 | 13.1 | 19.7 | 12.1 | 5.6 | 11.3 |
| 2,4-DIMETHYLPENTANE | 0.9 | 1.1 | 3.5 | 3.1 | 4.6 | 2.5 | 1.6 | 2.4 |
| CYCLOHEXANE | 1.7 | 1.3 | 5.3 | 8.6 | 11.1 | 10.3 | 2.3 | 10.5 |
| 2-METHYLHEXANE | 6.0 | 4.6 | 15.5 | 13.2 | 21.5 | 11.6 | 9.0 | 10.4 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 3.0 | 3.6 | 10.3 | 9.2 | 14.5 | 8.0 | 5.3 | 6.3 |
| 2,2,4-TRIMETHYLPENTANE | 3.5 | 4.1 | 15.9 | 11.1 | 18.3 | 7.7 | 6.9 | 6.0 |
| n-HEPTANE | 1.9 | 3.4 | 8.9 | 8.8 | 14.5 | 5.8 | 3.3 | 5.4 |
| METHYLCYCLOHEXANE | 2.5 | 2.4 | 7.1 | 9.4 | 15.0 | 6.2 | 3.4 | 5.8 |
| 2,5-DIMETHYLHEXANE | 0.8 | 0.5 | 3.0 | 2.7 | 3.8 | 2.4 | 1.6 | 1.5 |
| 2,4-DIMETHYLHEXANE | 0.8 | 1.0 | 3.3 | 3.0 | 3.5 | 2.6 | 1.6 | 1.5 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 1.6 | 5.0 | 5.5 | 4.7 | 4.6 | 2.7 | 2.4 |
| 2-METHYLHEPTANE | 0.7 | 1.7 | 3.8 | 3.3 | 9.4 | 3.5 | 2.2 | 2.2 |
| 3-METHYLHEPTANE | 1.3 | 1.4 | 4.2 | 3.6 | 6.3 | 3.8 | 2.3 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.4 | 0.9 | 2.0 | 1.7 | 2.2 | 1.7 | 0.9 | 0.6 |
| n-OCTANE | 1.4 | 1.4 | 3.8 | 3.4 | 8.1 | 5.1 | 2.4 | 4.0 |
| 2,4-DIMETHYLHEPTANE | * | 0.3 | 1.1 | 1.1 | * | 1.0 | 1.6 | 0.9 |
| 4-METHYLOCTANE | 0.9 | 1.3 | 2.2 | 2.7 | 2.9 | 2.0 | 1.5 | 1.0 |
| 3-METHYLOCTANE | 1.0 | 1.0 | 2.0 | 1.7 | 2.1 | 2.1 | 1.3 | 0.9 |
| n-NONANE | 1.1 | 0.8 | 3.1 | 2.0 | 3.7 | 2.1 | 1.1 | 1.7 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.0 | 1.9 | 5.2 | 3.3 | 3.6 | 4.7 | 1.2 | 1.8 |
| SUM OTHER PARAFFINS | 16.1 | 10.3 | 52.0 | 43.4 | 60.1 | 36.4 | 22.3 | 30.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 9.2 | 11.3 | 73.9 | 57.6 | 23.7 | 42.6 | 22.4 | 34.6 |
| PROPENE | 4.5 | 3.0 | 36.3 | 27.1 | 17.1 | 22.9 | 7.8 | 27.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.6 | 2.8 | 16.6 | 12.1 | 14.8 | 0.2 | 6.9 | 26.2 |
| 1,3-BUTADIENE | 0.7 | * | 5.2 | 6.6 | 4.0 | 3.0 | 1.8 | 2.3 |
| t-2-BUTENE | 1.7 | 1.0 | 6.7 | 8.4 | 4.9 | 6.5 | 3.0 | 8.1 |
| c-2-BUTENE | 1.1 | 0.9 | 3.7 | 3.3 | 3.9 | 2.9 | 2.1 | 6.7 |
| 1-PENTENE | 0.8 | 1.0 | 0.4 | 3.6 | 6.5 | 9.0 | 1.6 | 9.1 |
| 2-METHYL-1-BUTENE | 1.6 | 1.5 | 4.4 | 5.1 | 6.3 | 4.0 | 2.7 | 11.7 |
| ISOPRENE | 1.0 | 3.3 | 3.4 | 4.4 | 2.1 | 6.9 | 2.9 | 4.9 |
| t-2-PENTENE | 1.7 | 1.7 | 6.1 | 5.7 | 6.4 | 4.6 | 3.3 | 11.2 |
| c-2-PENTENE | 2.2 | 2.5 | 6.7 | 6.4 | 4.9 | 6.1 | * | 10.2 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.2 | 0.3 | * | * | * | * | * | * |
| 2-METHYL-2-PENTENE | 0.5 | 0.7 | 1.9 | 2.0 | 2.7 | 1.5 | 1.0 | 2.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.7 | 0.9 | 2.1 | 1.0 | 3.1 | 4.0 | 1.0 | 1.5 |
| a-PINENE | 2.9 | 1.6 | 26.8 | 21.7 | 6.0 | 8.8 | 6.2 | 3.3 |
| SUM OTHER OLEFINS | 14.0 | 11.8 | 29.2 | 24.6 | 41.3 | 31.2 | 26.6 | 46.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 5.4 | 7.5 | 29.7 | 27.3 | 32.3 | 22.9 | 10.9 | 17.0 |
| TOLUENE | 15.9 | 24.2 | 44.9 | 55.1 | 52.1 | 50.4 | 26.7 | 30.6 |
| ETHYLBENZENE | 2.5 | 4.8 | 159.1 | 13.5 | 13.0 | 10.8 | 5.8 | 5.0 |
| m&p-XYLENE | 9.2 | 14.6 | 24.4 | 30.9 | 30.3 | 27.5 | 14.8 | 17.8 |
| o-XYLENE | 4.4 | 7.2 | 10.4 | 12.4 | 11.7 | 12.4 | 6.7 | 6.2 |
| n-PROPYLBENZENE | 0.7 | 1.3 | 1.9 | 2.1 | 2.6 | 2.8 | 1.0 | 0.7 |
| m-ETHYLTOLUENE | 3.1 | 3.8 | 7.5 | 9.3 | 6.5 | 8.4 | 5.0 | 2.8 |
| p-ETHYLTOLUENE | 1.5 | 1.9 | 2.3 | 4.3 | 2.0 | 4.1 | 2.2 | 1.4 |
| 1,3,5-TRIMETHYLBENZENE | 1.8 | 2.3 | 4.0 | 4.8 | 3.6 | 4.7 | 2.6 | 1.0 |
| o-ETHYLTOLUENE | 1.5 | 2.1 | 4.1 | 4.1 | 4.7 | 4.5 | 2.2 | 1.4 |
| 1,2,4-TRIMETHYLBENZENE | 5.9 | 11.1 | 7.9 | 20.0 | 18.4 | 18.6 | 9.1 | 6.5 |
| n-DECANE | 0.8 | 2.0 | 3.1 | 3.6 | 5.4 | 3.7 | 1.4 | 1.0 |
| 1,4-DIETHYLBENZENE | 1.1 | 1.5 | 3.4 | 2.9 | 3.5 | 4.0 | 2.0 | 1.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.2 | 1.8 | 3.3 | 1.5 | 3.2 | 5.2 | 1.5 | 1.5 |
| SUM OTHER AROMATICS | 14.1 | 19.1 | 45.1 | 45.6 | 49.2 | 56.9 | 16.8 | 22.0 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 8.0 | 7.8 | 37.1 | 16.1 | 18.0 | 12.9 | 10.8 | 8.6 |
| SUM UNKNOWNS | 3.9 | 1.6 | 9.6 | 1.2 | 14.8 | 17.3 | 9.4 | 8.9 |
| SUM PARAFFINS | 225.8 | 196.2 | 810.4 | 919.9 | 1142.5 | 715.5 | 290.4 | 759.0 |
| SUM OLEFINS | 49.9 | 45.0 | 223.9 | 190.3 | 148.3 | 154.9 | 90.1 | 207.3 |
| SUM AROMATICS | 69.6 | 105.6 | 351.8 | 238.4 | 239.1 | 237.4 | 109.3 | 116.9 |
| SUM HYDROCARBONS | 357.3 | 356.4 | 1433.0 | 1366.1 | 1563.0 | 1138.1 | 510.2 | 1101.0 |

TABLE A-22d. Hydrocarbon concentration data for HOUSTON 1, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2433<br>85/09/10 | 2466<br>85/09/12 | 2485<br>85/09/13 | 2543<br>85/09/18 | 2558<br>86/08/29 | 2603RA0<br>85/09/23 | 2624<br>85/09/24 | 2629<br>86/09/04 |
| PARAFFINS | | | | | | | | |
| ETHANE | 57.5 | 71.1 | 31.3 | 29.2 | 20.8 | 30.8 | 17.2 | 61.4 |
| PROPANE | 70.8 | 76.3 | 29.0 | 45.1 | 17.7 | 22.9 | 14.6 | 95.4 |
| ISOBUTANE | 51.8 | 39.3 | 16.7 | 16.9 | 8.8 | 9.4 | 6.6 | 87.5 |
| n-BUTANE | 62.2 | 64.6 | 48.1 | 36.5 | 24.0 | 26.0 | 21.9 | 256.3 |
| ISOPENTANE | 69.4 | 71.4 | 71.1 | 40.9 | 30.3 | 31.5 | 32.8 | 169.4 |
| n-PENTANE | 32.7 | 29.1 | 22.7 | 16.5 | 12.8 | 10.1 | 10.4 | 66.6 |
| 2,2-DIMETHYLBUTANE | 2.6 | 2.8 | 2.5 | 1.9 | 0.9 | 1.3 | 0.9 | 4.5 |
| CYCLOPENTANE | 3.3 | 3.4 | 3.6 | 1.8 | 1.3 | 1.2 | 1.0 | 6.1 |
| 2,3-DIMETHYLBUTANE | 5.5 | 4.8 | 5.3 | 3.3 | 2.1 | 2.2 | 2.1 | 10.7 |
| 2-METHYLPENTANE | 21.9 | 21.8 | 23.3 | 16.4 | 8.5 | 12.5 | 7.7 | 36.2 |
| 3-METHYLPENTANE | 11.8 | 13.4 | 12.7 | 8.6 | 5.5 | 5.4 | 5.0 | 22.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 17.2 | 18.2 | 11.0 | 9.9 | 4.6 | 5.4 | 4.5 | 19.6 |
| METHYLCYCLOPENTANE | 8.8 | 8.9 | 7.3 | 5.2 | 3.1 | 3.5 | 2.8 | 13.3 |
| 2,4-DIMETHYLPENTANE | 2.8 | 2.0 | 2.5 | 1.4 | 1.1 | 1.1 | 0.9 | 5.1 |
| CYCLOHEXANE | 7.1 | 4.1 | 2.0 | 1.9 | 0.8 | 1.5 | 0.6 | 4.2 |
| 2-METHYLHEXANE | 10.8 | 11.1 | 14.7 | 7.7 | 3.8 | 7.0 | 6.4 | 15.6 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 6.6 | 6.4 | 7.9 | 4.9 | 2.7 | 3.8 | 2.9 | 9.3 |
| 2,2,4-TRIMETHYLPENTANE | 8.2 | 7.1 | 11.6 | 6.3 | 4.7 | 4.0 | 3.5 | 17.6 |
| n-HEPTANE | 5.2 | 4.6 | 7.1 | 3.4 | 1.5 | 2.8 | 1.8 | 7.1 |
| METHYLCYCLOHEXANE | 5.1 | 5.4 | 3.7 | 3.3 | 1.8 | 2.6 | 1.3 | 6.5 |
| 2,5-DIMETHYLHEXANE | 1.9 | 1.8 | 2.1 | 1.5 | 0.3 | 1.1 | 0.7 | 3.2 |
| 2,4-DIMETHYLHEXANE | 2.1 | 1.9 | 2.4 | 1.6 | 0.9 | 1.1 | 0.9 | 3.5 |
| 2,3,4-TRIMETHYLPENTANE | 3.2 | 3.0 | 4.3 | 2.5 | 1.6 | 1.6 | 1.6 | 6.0 |
| 2-METHYLHEPTANE | 2.7 | 2.4 | 4.5 | 1.1 | 1.1 | 1.5 | 1.3 | 3.7 |
| 3-METHYLHEPTANE | 2.7 | 2.5 | 3.6 | 2.1 | 1.0 | 1.9 | 1.2 | 4.0 |
| 2,2,5-TRIMETHYLHEXANE | 1.4 | 1.3 | 1.8 | 1.1 | 1.0 | 0.7 | 0.4 | 2.4 |
| n-OCTANE | 3.1 | 2.3 | 4.3 | 2.7 | 0.8 | 2.1 | 1.0 | 3.2 |
| 2,4-DIMETHYLHEPTANE | 1.6 | 0.5 | 1.0 | 0.3 | 0.7 | * | 0.5 | 0.7 |
| 4-METHYLOCTANE | 2.3 | 1.5 | 2.0 | 1.1 | 1.1 | 2.0 | 0.6 | 3.5 |
| 3-METHYLOCTANE | 1.4 | 1.3 | 1.8 | 0.6 | 0.7 | 2.2 | 0.4 | 1.9 |
| n-NONANE | 1.9 | 1.9 | 2.5 | 1.0 | 0.6 | 4.6 | 0.8 | 1.9 |
| 4-METHYLNONANE | * | * | * | * | * | 3.8 | * | * |
| n-DECANE | 4.1 | 3.6 | 5.8 | 1.4 | 1.2 | 12.5 | 1.2 | 2.7 |
| SUM OTHER PARAFFINS | 31.2 | 34.3 | 48.4 | 18.0 | 15.1 | 40.3 | 8.6 | 31.1 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 65.3 | 54.1 | 29.5 | 34.9 | 15.4 | 11.6 | 12.0 | 15.5 |
| PROPENE | 36.3 | 14.7 | 12.0 | 18.6 | 6.1 | 7.3 | 3.5 | 10.0 |
| 2-METHYLPROPYLENE,BUTENE-1 | 17.3 | 17.8 | 10.5 | 12.2 | 4.3 | 3.1 | 3.4 | 0.1 |
| 1,3-BUTADIENE | 4.4 | 2.8 | 2.7 | 1.4 | 1.5 | 0.8 | 0.4 | 0.5 |
| t-2-BUTENE | 4.6 | 4.4 | 4.4 | 2.2 | 1.6 | 1.2 | 1.5 | 13.0 |
| c-2-BUTENE | 2.6 | 3.4 | 3.0 | 1.6 | 1.2 | 1.0 | 1.2 | 12.6 |
| 1-PENTENE | 2.4 | 2.8 | 2.7 | 1.5 | 1.1 | 0.9 | 0.1 | 8.6 |
| 2-METHYL-1-BUTENE | 2.8 | 3.0 | 3.9 | 2.4 | 1.8 | 1.4 | 1.2 | 13.0 |
| ISOPRENE | 1.9 | 3.9 | 5.0 | 0.9 | 1.1 | * | 0.2 | 5.4 |
| t-2-PENTENE | 3.6 | 3.8 | 5.7 | 2.7 | 1.4 | 1.6 | 1.7 | 14.8 |
| c-2-PENTENE | 3.8 | 4.1 | 5.8 | 2.9 | 2.3 | 1.7 | 1.8 | 17.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | * | * | * | 0.3 | 0.1 | 0.2 | 2.2 |
| 2-METHYL-2-PENTENE | 1.2 | 1.1 | 1.5 | 3.3 | 0.5 | 0.8 | 0.1 | 4.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 1.1 | 1.3 | 3.0 | 0.7 | 1.2 | 0.6 | 1.1 |
| a-PINENE | 4.4 | 22.6 | 21.3 | 0.9 | * | 2.0 | 0.5 | 3.7 |
| SUM OTHER OLEFINS | 27.3 | 18.2 | 30.4 | 24.5 | 7.7 | 7.7 | 9.2 | 45.4 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 23.3 | 15.8 | 16.3 | 16.3 | 7.8 | 6.6 | 5.6 | 16.7 |
| TOLUENE | 34.3 | 30.7 | 37.2 | 30.6 | 17.5 | 16.0 | 12.9 | 51.8 |
| ETHYLBENZENE | 51.2 | 10.4 | 7.9 | 4.8 | 3.9 | 4.9 | 2.5 | 11.6 |
| m&p-XYLENE | 78.0 | 17.8 | 22.9 | 14.5 | 12.4 | 12.0 | 8.2 | 39.7 |
| o-XYLENE | 25.6 | 6.5 | 10.1 | 6.1 | 5.2 | 4.7 | 3.7 | 15.3 |
| n-PROPYLBENZENE | 1.3 | 1.7 | 3.3 | 1.1 | 1.2 | 1.6 | 0.6 | 3.2 |
| m-ETHYLTOLUENE | 4.9 | 6.2 | 8.7 | 4.2 | 3.7 | 3.7 | 2.7 | 11.1 |
| p-ETHYLTOLUENE | 2.4 | 2.8 | 4.3 | 2.0 | 1.8 | 3.0 | 1.3 | 5.6 |
| 1,3,5-TRIMETHYLBENZENE | 3.0 | 3.6 | 5.4 | 2.4 | 2.1 | 2.3 | 1.6 | 6.4 |
| o-ETHYLTOLUENE | 2.6 | 2.9 | 4.4 | 1.9 | 1.8 | 3.9 | 1.2 | 5.1 |
| 1,2,4-TRIMETHYLBENZENE | 13.5 | 13.4 | 20.0 | 11.3 | 11.3 | 14.4 | 5.5 | 23.2 |
| n-DECANE | 1.9 | 2.3 | 5.3 | 1.7 | 1.0 | 2.1 | 0.8 | 5.1 |
| 1,4-DIETHYLBENZENE | 1.9 | 1.9 | 3.0 | 1.5 | 1.3 | 2.8 | 1.2 | 4.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | * | 3.8 | 1.3 | 1.0 | 5.7 | 0.6 | 3.5 |
| SUM OTHER AROMATICS | 23.8 | 22.1 | 30.2 | 12.8 | 24.5 | 36.1 | 11.9 | 45.7 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 22.5 | 15.7 | 21.6 | 15.2 | 9.2 | 9.6 | 6.2 | 10.7 |
| SUM UNKNOWNS | 4.2 | 3.9 | 4.6 | 2.4 | 0.9 | 5.1 | 1.1 | 1.1 |
| SUM PARAFFINS | 522.3 | 525.4 | 420.3 | 297.7 | 184.4 | 261.7 | 165.4 | 983.7 |
| SUM OLEFINS | 179.8 | 158.6 | 140.4 | 113.7 | 47.6 | 43.0 | 38.4 | 167.9 |
| SUM AROMATICS | 268.1 | 138.8 | 183.5 | 113.3 | 97.3 | 120.4 | 60.7 | 248.7 |
| SUM HYDROCARBONS | 997.2 | 842.5 | 770.6 | 544.0 | 339.6 | 439.9 | 272.0 | 1412.3 |

TABLE A-22e. Hydrocarbon concentration data for HOUSTON 1, TX

| Compound | ID Number and Sample Date | | | |
|---|---|---|---|---|
| | 2648<br>85/09/27 | 2720<br>86/09/10 | 2831<br>86/09/16 | 2964<br>86/09/26 |
| **PARAFFINS** | | | | |
| ETHANE | 54.6 | 99.0 | 66.8 | 31.8 |
| PROPANE | 48.7 | 378.6 | 136.3 | 69.7 |
| ISOBUTANE | 20.9 | 511.4 | 157.8 | 92.0 |
| n-BUTANE | 35.4 | 5.4 | 456.5 | 166.1 |
| ISOPENTANE | 34.7 | 616.2 | 266.8 | 104.7 |
| n-PENTANE | 13.9 | 363.7 | 101.7 | 58.3 |
| 2,2-DIMETHYLBUTANE | 1.6 | 18.0 | 7.5 | 3.4 |
| CYCLOPENTANE | 1.6 | 19.5 | 9.7 | 3.8 |
| 2,3-DIMETHYLBUTANE | 2.7 | 32.6 | 16.6 | 6.5 |
| 2-METHYLPENTANE | 23.0 | 147.6 | 54.3 | 25.8 |
| 3-METHYLPENTANE | 6.7 | 74.6 | 35.0 | 16.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.6 | 103.9 | 35.5 | 22.9 |
| METHYLCYCLOPENTANE | 4.7 | 37.8 | 20.7 | 9.2 |
| 2,4-DIMETHYLPENTANE | 1.2 | 11.7 | 6.8 | 3.0 |
| CYCLOHEXANE | 2.1 | 17.1 | 6.3 | 15.1 |
| 2-METHYLHEXANE | 6.9 | 45.1 | 21.0 | 11.5 |
| 2,3-DIMETHYLPENTANE | * | * | * | * |
| 3-METHYLHEXANE | 4.2 | 32.4 | 13.6 | 8.6 |
| 2,2,4-TRIMETHYLPENTANE | 4.6 | 39.6 | 23.7 | 8.4 |
| n-HEPTANE | 3.1 | 40.3 | 11.2 | 8.5 |
| METHYLCYCLOHEXANE | 3.6 | 22.1 | 9.4 | 5.7 |
| 2,5-DIMETHYLHEXANE | 1.2 | 8.3 | 4.9 | 2.1 |
| 2,4-DIMETHYLHEXANE | 1.3 | 8.6 | 4.7 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 1.8 | 10.3 | 7.7 | 3.1 |
| 2-METHYLHEPTANE | 1.6 | 18.0 | 5.1 | 4.5 |
| 3-METHYLHEPTANE | 1.8 | 14.2 | 5.8 | 3.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 5.6 | 3.4 | 1.3 |
| n-OCTANE | 2.0 | 14.7 | 5.1 | 3.7 |
| 2,4-DIMETHYLHEPTANE | 0.8 | 1.9 | 1.2 | 0.8 |
| 4-METHYLOCTANE | 0.7 | 9.2 | 3.8 | 2.2 |
| 3-METHYLOCTANE | 0.4 | 6.1 | 2.3 | 1.5 |
| n-NONANE | 0.7 | 7.0 | 2.7 | 2.1 |
| 4-METHYLNONANE | * | * | * | * |
| n-DECANE | 1.2 | 6.8 | 3.7 | 2.1 |
| SUM OTHER PARAFFINS | 10.8 | 105.5 | 48.6 | 27.1 |

OLEFINS

| | | | | |
|---|---|---|---|---|
| ETHYLENE | 17.2 | 30.2 | 25.0 | 31.5 |
| PROPENE | 39.8 | 50.2 | 17.2 | 28.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.5 | 36.3 | 21.8 | 9.2 |
| 1,3-BUTADIENE | 1.1 | 5.8 | 2.8 | 3.6 |
| t-2-BUTENE | 1.4 | 36.0 | 15.9 | 6.9 |
| c-2-BUTENE | 0.8 | 26.0 | 14.0 | 4.9 |
| 1-PENTENE | 0.7 | 20.4 | 12.1 | 4.3 |
| 2-METHYL-1-BUTENE | 1.4 | 26.1 | 17.2 | 6.5 |
| ISOPRENE | 0.6 | 4.9 | 4.4 | 2.6 |
| t-2-PENTENE | 1.9 | 26.2 | 16.9 | 6.9 |
| c-2-PENTENE | 2.0 | * | 13.2 | 7.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 11.6 | 3.8 | * |
| 2-METHYL-2-PENTENE | 0.7 | 5.1 | 3.3 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.7 | 2.6 | 1.3 | 0.9 |
| a-PINENE | 0.1 | * | 2.9 | 0.5 |
| SUM OTHER OLEFINS | 15.5 | 90.1 | 52.5 | 29.8 |

AROMATICS

| | | | | |
|---|---|---|---|---|
| BENZENE | 43.3 | 54.7 | 22.1 | 23.2 |
| TOLUENE | 22.6 | 115.8 | 70.6 | 30.3 |
| ETHYLBENZENE | 117.4 | 21.0 | 10.8 | 5.4 |
| m&p-XYLENE | 11.1 | 60.3 | 30.1 | 16.7 |
| o-XYLENE | 4.4 | 25.1 | 11.4 | 6.4 |
| n-PROPYLBENZENE | 0.8 | 7.9 | 3.7 | 1.2 |
| m-ETHYLTOLUENE | 3.6 | 18.6 | 9.9 | 4.9 |
| p-ETHYLTOLUENE | 1.7 | 10.2 | 5.1 | 2.5 |
| 1,3,5-TRIMETHYLBENZENE | 2.0 | 11.4 | 5.4 | 3.5 |
| o-ETHYLTOLUENE | 1.6 | 10.0 | 5.0 | 2.5 |
| 1,2,4-TRIMETHYLBENZENE | 10.1 | 35.4 | 19.4 | 13.4 |
| n-DECANE | 1.5 | 7.8 | 4.3 | 2.1 |
| 1,4-DIETHYLBENZENE | 1.5 | 8.3 | 4.2 | 2.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 8.0 | 3.7 | 1.8 |
| SUM OTHER AROMATICS | 13.7 | 68.9 | 51.1 | 44.0 |

SUMMARY

| | | | | |
|---|---|---|---|---|
| ACETYLENE | 12.6 | 15.9 | 12.5 | 8.6 |
| SUM UNKNOWNS | 2.7 | 1.6 | 2.2 | 1.7 |
| SUM PARAFFINS | 308.6 | 2833.9 | 1557.5 | 729.2 |
| SUM OLEFINS | 90.0 | 372.0 | 225.0 | 145.7 |
| SUM AROMATICS | 235.7 | 464.2 | 257.6 | 160.8 |
| SUM HYDROCARBONS | 649.8 | 3687.7 | 2055.1 | 1046.2 |

TABLE A-23a. Hydrocarbon concentration data for HOUSTON 2, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1338 86/06/23 | 1456 86/06/30 | 1600 86/07/09 | 1766 86/07/17 | 1914 86/07/25 | 2055 86/08/01 | 2097 86/08/05 | 2319 86/08/18 |
| PARAFFINS | | | | | | | | |
| ETHANE | 66.9 | 20.8 | 53.1 | 32.8 | 24.2 | 22.0 | 71.7 | 22.5 |
| PROPANE | 59.1 | 14.0 | 58.9 | 26.9 | 14.4 | 14.2 | 69.8 | 15.5 |
| ISOBUTANE | 40.4 | 10.4 | 29.3 | 11.3 | 10.6 | 8.3 | 49.8 | 9.7 |
| n-BUTANE | 129.0 | 44.8 | 97.7 | 52.3 | 42.0 | 30.2 | 131.1 | 38.1 |
| ISOPENTANE | 137.0 | 57.5 | 97.4 | 67.1 | 64.9 | 49.2 | 161.6 | 56.2 |
| n-PENTANE | 63.0 | 25.7 | 41.8 | 28.5 | 24.8 | 18.3 | 75.1 | 22.7 |
| 2,2-DIMETHYLBUTANE | 5.7 | 1.7 | 3.2 | 2.3 | 1.8 | 1.0 | 4.7 | 1.7 |
| CYCLOPENTANE | 7.1 | 2.9 | 4.9 | 3.1 | 2.8 | 1.9 | 6.5 | 2.4 |
| 2,3-DIMETHYLBUTANE | 10.5 | 4.9 | 8.0 | 5.4 | 5.1 | 3.5 | 9.7 | 4.3 |
| 2-METHYLPENTANE | 44.1 | 17.8 | 34.3 | 19.7 | 18.3 | 12.7 | 42.8 | 15.6 |
| 3-METHYLPENTANE | 24.0 | 11.6 | 18.4 | 12.6 | 12.4 | 9.2 | 23.5 | 9.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 23.7 | 10.5 | 15.8 | 11.3 | 10.2 | 7.7 | 24.7 | 8.4 |
| METHYLCYCLOPENTANE | 15.2 | 6.8 | 11.2 | 7.3 | 7.2 | 5.2 | 15.3 | 5.8 |
| 2,4-DIMETHYLPENTANE | 4.8 | 2.3 | 3.5 | 2.5 | 2.4 | 1.7 | 4.2 | 2.0 |
| CYCLOHEXANE | 5.3 | 1.9 | 4.6 | 6.8 | 1.8 | 2.1 | 12.8 | 1.8 |
| 2-METHYLHEXANE | 17.6 | 9.2 | 15.3 | 9.1 | 9.0 | 5.9 | 18.0 | 7.0 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 11.5 | 6.2 | 10.4 | 6.7 | 6.1 | 4.5 | 11.7 | 5.1 |
| 2,2,4-TRIMETHYLPENTANE | 16.6 | 11.9 | 18.7 | 12.9 | 11.7 | 7.9 | 19.6 | 9.0 |
| n-HEPTANE | 12.0 | 6.3 | 9.9 | 5.2 | 4.8 | 3.7 | 9.3 | 3.6 |
| METHYLCYCLOHEXANE | 7.7 | 3.4 | 6.0 | 3.6 | 3.5 | 2.8 | 7.7 | 3.2 |
| 2,5-DIMETHYLHEXANE | 4.1 | 2.2 | 3.2 | 2.4 | 2.5 | 1.6 | 3.6 | 2.1 |
| 2,4-DIMETHYLHEXANE | 5.1 | 2.4 | 3.7 | 2.8 | 2.7 | 1.8 | 3.8 | 2.0 |
| 2,3,4-TRIMETHYLPENTANE | 10.1 | 4.3 | 6.6 | 4.7 | 4.7 | 3.1 | 6.3 | 3.4 |
| 2-METHYLHEPTANE | 7.7 | 4.3 | 6.0 | 2.9 | 2.9 | 2.7 | 4.7 | 2.7 |
| 3-METHYLHEPTANE | 7.2 | 3.5 | 5.0 | 3.0 | 3.0 | 2.2 | 5.2 | 2.2 |
| 2,2,5-TRIMETHYLHEXANE | 3.6 | 1.8 | 2.7 | 1.9 | 2.0 | 1.4 | 2.1 | 1.9 |
| n-OCTANE | 5.5 | 3.0 | 4.4 | 2.4 | 3.5 | 2.6 | 5.1 | 2.1 |
| 2,4-DIMETHYLHEPTANE | 1.6 | 1.4 | 1.2 | 0.5 | 0.9 | 0.3 | 1.6 | 0.6 |
| 4-METHYLOCTANE | 4.8 | 3.4 | 5.5 | 2.1 | 3.2 | 2.4 | 4.0 | 2.1 |
| 3-METHYLOCTANE | 5.7 | 2.1 | 3.6 | 2.4 | 2.0 | 1.5 | 2.8 | 1.4 |
| n-NONANE | 7.7 | 4.0 | 12.0 | 2.2 | 2.4 | 1.9 | 4.8 | 1.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 15.3 | 9.8 | 24.9 | 4.5 | 3.3 | 2.8 | 9.7 | 3.7 |
| SUM OTHER PARAFFINS | 91.0 | 38.5 | 117.8 | 32.0 | 26.2 | 17.3 | 67.9 | 16.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 38.7 | 31.8 | 41.4 | 66.8 | 24.3 | 19.0 | 47.9 | 19.1 |
| PROPENE | 14.9 | 9.8 | 16.6 | 22.1 | 8.1 | 5.4 | 23.7 | 6.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 13.2 | 8.6 | 10.1 | 8.5 | 7.4 | 5.1 | 0.0 | 5.8 |
| 1,3-BUTADIENE | 3.3 | 1.8 | 1.1 | 1.2 | 0.5 | 0.3 | 3.7 | 0.7 |
| t-2-BUTENE | 7.0 | 3.3 | 4.3 | 2.7 | 2.4 | 1.6 | 7.1 | 2.9 |
| c-2-BUTENE | 4.8 | 2.6 | 3.6 | 2.8 | 2.2 | 1.4 | 5.0 | 2.2 |
| 1-PENTENE | 6.2 | 2.3 | 3.8 | 2.8 | 2.4 | 1.6 | 5.7 | 2.2 |
| 2-METHYL-1-BUTENE | 8.5 | 3.6 | 5.7 | 4.5 | 3.9 | 2.5 | 8.2 | 3.7 |
| ISOPRENE | 3.6 | 2.7 | 3.2 | 2.0 | 0.5 | 0.9 | 2.4 | 2.3 |
| t-2-PENTENE | 9.3 | 4.4 | 6.8 | 5.2 | 5.0 | 1.5 | 10.0 | 4.3 |
| c-2-PENTENE | 10.7 | 5.6 | 9.6 | 7.3 | 6.4 | 4.4 | 11.5 | 5.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 6.3 | 1.5 | * | 0.9 | 0.9 | 0.6 | * | 0.8 |
| 2-METHYL-2-PENTENE | 3.1 | 1.7 | 2.6 | 2.0 | 2.0 | 1.3 | 3.8 | 1.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.2 | 1.8 | 2.5 | 2.0 | 1.4 | 2.9 | 3.0 | 1.2 |
| a-PINENE | 9.0 | 1.3 | 1.9 | 0.6 | 0.5 | 1.4 | 7.6 | 0.9 |
| SUM OTHER OLEFINS | 47.7 | 20.0 | 30.4 | 23.8 | 24.6 | 14.5 | 48.7 | 23.0 |
| AROMATICS | | | | | | | | |
| BENZENE | 31.6 | 16.7 | 24.5 | 23.1 | 16.5 | 11.5 | 26.1 | 13.3 |
| TOLUENE | 78.6 | 46.8 | 72.1 | 54.6 | 52.4 | 36.1 | 68.6 | 34.5 |
| ETHYLBENZENE | 15.5 | 8.4 | 13.0 | 11.5 | 9.4 | 6.7 | 14.8 | 6.2 |
| m&p-XYLENE | 44.7 | 25.9 | 39.9 | 29.0 | 29.4 | 20.8 | 44.5 | 20.3 |
| o-XYLENE | 22.1 | 11.3 | 16.6 | 11.1 | 11.4 | 8.1 | 18.2 | 8.0 |
| n-PROPYLBENZENE | 4.7 | 5.6 | 4.9 | 3.0 | 1.9 | 1.3 | 3.3 | 1.4 |
| m-ETHYLTOLUENE | 14.3 | 10.9 | 13.1 | 9.5 | 8.3 | 6.1 | 11.7 | 6.6 |
| p-ETHYLTOLUENE | 7.8 | 6.2 | 9.2 | 5.0 | 4.3 | 3.2 | 6.3 | 3.6 |
| 1,3,5-TRIMETHYLBENZENE | 9.6 | 7.9 | 12.5 | 5.8 | 5.2 | 4.0 | 7.9 | 4.2 |
| o-ETHYLTOLUENE | 9.3 | 6.1 | 9.1 | 4.6 | 4.1 | 3.0 | 5.8 | 3.3 |
| 1,2,4-TRIMETHYLBENZENE | 34.0 | 23.7 | 28.0 | 19.8 | 19.1 | 12.9 | 23.3 | 16.3 |
| n-DECANE | 11.0 | 6.3 | 8.7 | 3.8 | 3.5 | 2.4 | 5.6 | 2.6 |
| 1,4-DIETHYLBENZENE | 10.1 | 5.7 | 8.1 | 3.5 | 3.4 | 2.7 | 6.6 | 2.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 14.1 | 10.9 | 8.8 | 2.7 | 2.2 | 1.7 | 5.3 | 2.1 |
| SUM OTHER AROMATICS | 91.2 | 55.8 | 133.1 | 31.9 | 44.0 | 33.3 | 87.2 | 32.6 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 29.3 | 16.2 | 27.3 | 20.3 | 16.8 | 10.6 | 25.1 | 11.0 |
| SUM UNKNOWNS | 11.6 | 2.2 | 1.6 | 0.7 | 1.0 | 0.9 | 3.7 | 0.2 |
| SUM PARAFFINS | 871.9 | 352.9 | 740.5 | 392.8 | 339.1 | 255.0 | 892.8 | 287.3 |
| SUM OLEFINS | 190.1 | 103.3 | 144.3 | 155.8 | 93.1 | 65.1 | 189.0 | 83.4 |
| SUM AROMATICS | 399.3 | 248.7 | 402.3 | 219.4 | 215.7 | 154.3 | 335.8 | 158.2 |
| SUM HYDROCARBONS | 1502.3 | 723.5 | 1316.1 | 789.1 | 665.8 | 486.1 | 1446.6 | 540.4 |

## TABLE A-23b. Hydrocarbon concentration data for HOUSTON 2, TX

| Compound | ID Number and Sample Date | | | |
|---|---|---|---|---|
| | 2560<br>86/08/29 | 2626<br>86/09/04 | 2721<br>86/09/10 | 2920<br>86/09/23 |
| PARAFFINS | | | | |
| ETHANE | 14.7 | 42.0 | 56.7 | 48.8 |
| PROPANE | 13.4 | 33.1 | 68.7 | 40.2 |
| ISOBUTANE | 7.9 | 23.9 | 43.8 | 23.3 |
| n-BUTANE | 25.9 | 71.2 | 69.1 | 76.3 |
| ISOPENTANE | 43.9 | 108.2 | 94.9 | 112.9 |
| n-PENTANE | 17.1 | 42.4 | 40.8 | 47.3 |
| 2,2-DIMETHYLBUTANE | 1.3 | 2.9 | 4.1 | 4.0 |
| CYCLOPENTANE | 1.9 | 4.3 | 5.2 | 5.5 |
| 2,3-DIMETHYLBUTANE | 3.8 | 8.6 | 9.1 | 9.2 |
| 2-METHYLPENTANE | 13.5 | 30.2 | 35.1 | 34.0 |
| 3-METHYLPENTANE | 9.3 | 19.3 | 24.1 | 21.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.6 | 17.1 | 38.0 | 18.8 |
| METHYLCYCLOPENTANE | 5.2 | 11.7 | 18.4 | 13.0 |
| 2,4-DIMETHYLPENTANE | 2.0 | 4.6 | 3.7 | 4.5 |
| CYCLOHEXANE | 1.2 | 3.1 | 12.2 | 3.1 |
| 2-METHYLHEXANE | 7.4 | 15.2 | 13.8 | 18.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * |
| 3-METHYLHEXANE | 5.3 | 9.8 | 9.4 | 12.1 |
| 2,2,4-TRIMETHYLPENTANE | 8.4 | 18.1 | 15.5 | 24.3 |
| n-HEPTANE | 3.8 | 7.2 | 6.6 | 7.9 |
| METHYLCYCLOHEXANE | 2.7 | 6.3 | 8.1 | 6.7 |
| 2,5-DIMETHYLHEXANE | 2.2 | 3.6 | 3.3 | 4.3 |
| 2,4-DIMETHYLHEXANE | 2.0 | 4.0 | 3.6 | 4.9 |
| 2,3,4-TRIMETHYLPENTANE | 3.1 | 6.4 | 5.8 | 8.0 |
| 2-METHYLHEPTANE | 3.0 | 5.1 | 3.7 | 5.1 |
| 3-METHYLHEPTANE | 2.4 | 4.4 | 4.4 | 5.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.9 | 2.8 | 2.6 | 2.6 |
| n-OCTANE | 1.9 | 3.6 | 6.1 | 5.2 |
| 2,4-DIMETHYLHEPTANE | 0.6 | 0.6 | 1.0 | 1.4 |
| 4-METHYLOCTANE | 2.4 | 3.2 | 4.5 | 5.1 |
| 3-METHYLOCTANE | 1.6 | 2.6 | 3.0 | 3.2 |
| n-NONANE | 1.5 | 4.0 | 5.5 | 6.9 |
| 4-METHYLNONANE | * | 1.2 | 5.9 | * |
| n-DECANE | 2.5 | 5.0 | 9.9 | 13.9 |
| SUM OTHER PARAFFINS | 19.6 | 46.4 | 68.3 | 80.3 |

OLEFINS

| | | | | |
|---|---|---|---|---|
| ETHYLENE | 14.2 | 34.0 | 47.6 | 63.1 |
| PROPENE | 5.1 | 15.0 | 17.8 | 18.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.3 | 12.0 | 15.9 | 13.9 |
| 1,3-BUTADIENE | 0.3 | 1.0 | 4.3 | 3.8 |
| t-2-BUTENE | 1.2 | 5.5 | 5.5 | 7.1 |
| c-2-BUTENE | 1.4 | 4.9 | 3.8 | 5.3 |
| 1-PENTENE | 1.7 | 4.9 | 3.9 | 5.5 |
| 2-METHYL-1-BUTENE | 2.5 | 8.0 | 7.0 | 9.0 |
| ISOPRENE | 0.6 | 2.4 | 5.9 | 4.1 |
| t-2-PENTENE | 3.7 | 10.6 | 7.9 | 11.2 |
| c-2-PENTENE | 5.1 | 12.0 | 138.6 | 12.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.6 | 3.1 | * | 0.6 |
| 2-METHYL-2-PENTENE | 2.0 | 5.8 | 1.6 | 3.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 1.5 | 11.6 | 3.6 |
| a-PINENE | * | 1.3 | 4.1 | 1.4 |
| SUM OTHER OLEFINS | 16.7 | 43.9 | 53.6 | 50.1 |

AROMATICS

| | | | | |
|---|---|---|---|---|
| BENZENE | 10.9 | 22.3 | 26.2 | 28.7 |
| TOLUENE | 30.8 | 62.7 | 64.0 | 73.8 |
| ETHYLBENZENE | 7.3 | 11.8 | 12.0 | 14.9 |
| m&p-XYLENE | 23.6 | 35.9 | 37.9 | 48.4 |
| o-XYLENE | 9.2 | 13.6 | 16.0 | 19.7 |
| n-PROPYLBENZENE | 1.5 | 4.9 | 4.0 | 5.1 |
| m-ETHYLTOLUENE | 6.9 | 12.2 | 11.3 | 16.8 |
| p-ETHYLTOLUENE | 3.5 | 6.5 | 6.1 | 9.3 |
| 1,3,5-TRIMETHYLBENZENE | 4.2 | 6.4 | * | 11.5 |
| o-ETHYLTOLUENE | 3.4 | 5.8 | 7.8 | 8.6 |
| 1,2,4-TRIMETHYLBENZENE | 16.1 | 24.6 | 25.8 | 33.4 |
| n-DECANE | 2.3 | 5.8 | * | 8.3 |
| 1,4-DIETHYLBENZENE | 2.4 | 4.2 | 4.1 | 9.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.5 | 3.9 | 4.5 | 4.9 |
| SUM OTHER AROMATICS | 34.0 | 43.5 | 55.7 | 138.7 |

SUMMARY

| | | | | |
|---|---|---|---|---|
| ACETYLENE | 13.5 | 24.7 | 22.2 | 18.2 |
| SUM UNKNOWNS | * | 0.4 | 16.0 | 5.3 |
| SUM PARAFFINS | 242.2 | 573.6 | 706.2 | 679.7 |
| SUM OLEFINS | 61.0 | 166.6 | 329.9 | 214.5 |
| SUM AROMATICS | 158.1 | 264.6 | 276.1 | 432.0 |
| SUM HYDROCARBONS | 475.0 | 1030.1 | 1350.5 | 1349.9 |

TABLE A-24a. Hydrocarbon concentration data for INDIANAPOLIS, IN

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1218 84/07/12 | 1342 84/07/19 | 1343 84/07/20 | 1387 84/07/23 | 1424 84/07/25 | 1492 84/07/30 | 1675 84/08/09 | 2250 84/09/14 |
| PARAFFINS | | | | | | | | |
| ETHANE | 15.9 | 49.6 | 8.6 | 39.8 | 12.8 | 12.5 | [illegible] | 8.7 |
| PROPANE | 31.9 | 135.6 | 10.6 | 54.3 | 14.3 | 18.1 | 0.0 | 12.5 |
| ISOBUTANE | 19.7 | 35.1 | 8.1 | 20.7 | 6.0 | 7.6 | 11.3 | 5.6 |
| n-BUTANE | 89.4 | 158.3 | 41.8 | 95.8 | 27.2 | 35.3 | 50.0 | 23.2 |
| ISOPENTANE | 100.0 | 178.2 | 51.0 | 107.8 | 33.1 | 41.5 | 53.5 | 26.8 |
| n-PENTANE | 55.8 | 105.4 | 29.5 | 63.6 | 21.8 | 25.3 | 31.9 | 17.0 |
| 2,2-DIMETHYLBUTANE | 3.1 | 5.7 | 1.6 | 3.6 | 1.2 | 1.3 | 1.8 | 1.0 |
| CYCLOPENTANE | 3.9 | 7.7 | 2.0 | 4.6 | 1.4 | 1.8 | 2.3 | 1.4 |
| 2,3-DIMETHYLBUTANE | 8.5 | 15.3 | 4.6 | 9.4 | 4.1 | 4.6 | 4.8 | 2.7 |
| 2-METHYLPENTANE | 30.2 | 57.1 | 17.5 | 35.6 | 14.6 | 15.3 | 17.3 | 12.0 |
| 3-METHYLPENTANE | 22.6 | 36.9 | 14.6 | 23.7 | 15.1 | 15.5 | 11.8 | 7.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 20.5 | 41.0 | 14.0 | 24.5 | 9.7 | 10.3 | 11.5 | 7.3 |
| METHYLCYCLOPENTANE | 12.7 | 24.4 | 7.5 | 14.6 | 5.9 | 6.3 | 7.2 | 4.2 |
| 2,4-DIMETHYLPENTANE | 7.2 | 12.9 | 4.7 | 6.9 | 4.1 | 3.5 | 4.2 | 2.1 |
| CYCLOHEXANE | 3.8 | 6.5 | 1.7 | 6.0 | 1.7 | 1.7 | 2.3 | 1.3 |
| 2-METHYLHEXANE | 9.6 | 38.2 | 5.5 | 12.1 | 7.0 | 4.4 | 5.4 | 4.0 |
| 2,3-DIMETHYLPENTANE | 12.5 | * | 6.3 | 11.6 | 5.3 | 5.3 | 6.4 | 3.5 |
| 3-METHYLHEXANE | 15.7 | 25.9 | 8.6 | 13.9 | 11.2 | 7.3 | 9.8 | 5.6 |
| 2,2,4-TRIMETHYLPENTANE | 15.0 | 26.1 | 7.7 | 16.9 | 3.5 | 7.5 | 9.2 | 6.0 |
| n-HEPTANE | 8.1 | 21.3 | 5.4 | 8.0 | 7.9 | 3.6 | 5.3 | 4.0 |
| METHYLCYCLOHEXANE | 4.7 | 10.8 | 2.4 | 8.0 | 3.2 | 2.7 | 2.9 | 3.5 |
| 2,5-DIMETHYLHEXANE | 3.0 | 5.9 | 1.6 | 3.3 | 1.4 | 1.4 | 1.7 | 1.1 |
| 2,4-DIMETHYLHEXANE | 4.0 | 6.6 | 1.9 | 3.7 | 1.6 | 1.7 | 2.1 | 1.3 |
| 2,3,4-TRIMETHYLPENTANE | 4.2 | 8.6 | 2.1 | 4.7 | 1.5 | 2.1 | 2.4 | 1.5 |
| 2-METHYLHEPTANE | 4.2 | 11.7 | 2.4 | 4.4 | 2.3 | 2.0 | 2.5 | 1.5 |
| 3-METHYLHEPTANE | 4.4 | 9.8 | 2.5 | 5.3 | 1.8 | 2.1 | 2.6 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.6 | 3.3 | 0.7 | 1.8 | 0.5 | 0.7 | 0.8 | 0.6 |
| n-OCTANE | 3.1 | 8.5 | 1.8 | 3.6 | 1.4 | 1.7 | 2.1 | 1.3 |
| 2,4-DIMETHYLHEPTANE | 0.0 | * | * | 0.2 | * | * | * | * |
| 4-METHYLOCTANE | 5.0 | 8.4 | 2.0 | 4.8 | 0.3 | 2.2 | 2.0 | 0.6 |
| 3-METHYLOCTANE | 2.3 | 5.1 | 1.0 | 2.9 | 0.7 | 0.9 | 1.0 | 0.7 |
| n-NONANE | 6.2 | 13.3 | 2.7 | 4.3 | 1.8 | 1.7 | 2.2 | 1.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 11.7 | 18.7 | 3.2 | 7.6 | 3.0 | 2.3 | 2.8 | 2.9 |
| SUM OTHER PARAFFINS | 102.2 | 199.9 | 40.6 | 65.7 | 37.0 | 29.5 | 42.1 | 23.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 39.4 | 88.2 | 21.9 | 57.9 | 18.3 | 22.1 | 25.2 | 18.4 |
| PROPENE | 13.1 | 27.1 | 7.3 | 17.5 | 6.4 | 6.9 | 9.2 | 5.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.5 | 16.4 | 5.5 | 10.1 | 3.8 | 4.5 | 5.4 | 3.5 |
| 1,3-BUTADIENE | 1.7 | 5.6 | 1.4 | 3.7 | 1.3 | 1.0 | 1.8 | 1.1 |
| t-2-BUTENE | 3.2 | 8.1 | 2.2 | 4.4 | 1.3 | 1.7 | 2.2 | 1.2 |
| c-2-BUTENE | 2.7 | 5.9 | 1.5 | 2.8 | 0.8 | 1.1 | 1.5 | 0.8 |
| 1-PENTENE | 3.4 | 6.5 | 19.2 | 2.9 | 1.6 | 0.9 | 1.5 | 1.0 |
| 2-METHYL-1-BUTENE | 4.5 | 9.1 | 2.4 | 5.0 | 1.6 | 1.9 | 2.8 | 1.4 |
| ISOPRENE | 1.7 | 2.9 | 0.8 | 1.9 | 0.7 | 1.2 | 1.1 | 0.7 |
| t-2-PENTENE | 5.6 | 11.7 | 3.2 | 6.1 | 1.8 | 2.2 | 3.3 | 1.7 |
| c-2-PENTENE | 8.6 | 11.0 | 2.8 | 4.8 | 1.6 | 1.9 | 3.0 | 1.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 4.8 | 0.6 | 1.3 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2-METHYL-2-PENTENE | 2.2 | 4.5 | 1.6 | 2.2 | 1.2 | 1.2 | 1.2 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 6.9 | 22.6 | 1.9 | 8.3 | 8.1 | 10.7 | 1.7 | 4.7 |
| a-PINENE | 1.4 | 3.0 | * | 1.3 | 0.8 | * | 0.7 | * |
| SUM OTHER OLEFINS | 88.5 | 121.1 | 54.5 | 87.0 | 43.9 | 46.5 | 48.7 | 35.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 25.5 | 76.1 | 19.9 | 45.1 | 10.3 | 12.2 | 17.8 | 9.3 |
| TOLUENE | 65.7 | 141.4 | 43.9 | 72.5 | 43.1 | 30.8 | 33.9 | 23.3 |
| ETHYLBENZENE | 10.1 | 25.7 | 6.4 | 12.1 | 7.7 | 5.1 | 6.0 | 4.3 |
| m&p-XYLENE | 34.7 | 83.7 | 20.7 | 48.7 | 25.0 | 16.8 | 18.9 | 13.8 |
| o-XYLENE | 12.5 | 26.6 | 7.0 | 13.5 | 6.2 | 5.9 | 6.4 | 4.8 |
| n-PROPYLBENZENE | 3.7 | 9.6 | 1.9 | 3.6 | 1.6 | 1.6 | 1.7 | 1.6 |
| m-ETHYLTOLUENE | 10.8 | 19.8 | 5.7 | 11.1 | 4.4 | 4.8 | 4.9 | 3.6 |
| p-ETHYLTOLUENE | 6.6 | 12.1 | 3.7 | 5.7 | 2.7 | 2.8 | 3.3 | 2.4 |
| 1,3,5-TRIMETHYLBENZENE | 4.5 | 13.2 | 3.4 | 6.1 | 2.8 | 2.8 | 3.0 | 2.5 |
| o-ETHYLTOLUENE | 6.9 | 11.7 | 3.2 | 4.9 | 2.6 | 2.8 | 2.8 | 2.3 |
| 1,2,4-TRIMETHYLBENZENE | 19.5 | 31.7 | 10.1 | 18.6 | 7.8 | 8.4 | 9.0 | 6.6 |
| n-DECANE | 8.0 | 17.1 | 5.5 | 7.6 | 4.5 | 3.7 | 3.2 | 4.3 |
| 1,4-DIETHYLBENZENE | 6.0 | 12.9 | 3.1 | 4.2 | 2.7 | 2.5 | 2.7 | 2.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 9.9 | 17.3 | 3.4 | 5.9 | 2.8 | 2.9 | 3.0 | 2.2 |
| SUM OTHER AROMATICS | 142.1 | 193.1 | 42.9 | 81.8 | 37.7 | 36.3 | 41.8 | 34.9 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 29.0 | 52.6 | 15.7 | 31.7 | 11.0 | 13.8 | 15.9 | 11.8 |
| SUM UNKNOWNS | 9.6 | 1.8 | 5.9 | 2.1 | * | 1.7 | 0.2 | 0.8 |
| SUM PARAFFINS | 644.0 | 1292.9 | 317.8 | 695.1 | 266.0 | 281.1 | 350.4 | 200.4 |
| SUM OLEFINS | 193.2 | 349.3 | 127.5 | 217.8 | 93.9 | 104.6 | 110.2 | 78.0 |
| SUM AROMATICS | 367.1 | 692.8 | 181.4 | 342.1 | 162.4 | 140.0 | 159.1 | 118.7 |
| SUM HYDROCARBONS | 1245.0 | 2392.1 | 648.9 | 1289.0 | 533.4 | 541.4 | 635.9 | 409.8 |

## TABLE A-24b. Hydrocarbon concentration data for INDIANAPOLIS, IN

| Compound | ID Number and Sample Date<br>2327<br>84/09/18 | <br>2440<br>84/09/26 |
|---|---|---|
| PARAFFINS | | |
| ETHANE | 38.8 | 7.9 |
| PROPANE | 45.4 | 8.9 |
| ISOBUTANE | 18.4 | 5.6 |
| n-BUTANE | 75.0 | 26.4 |
| ISOPENTANE | 85.1 | 25.9 |
| n-PENTANE | 51.8 | 16.3 |
| 2,2-DIMETHYLBUTANE | 3.6 | 0.8 |
| CYCLOPENTANE | 4.1 | 1.2 |
| 2,3-DIMETHYLBUTANE | 8.6 | 2.6 |
| 2-METHYLPENTANE | 33.5 | 9.9 |
| 3-METHYLPENTANE | 22.7 | 6.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 25.0 | 6.9 |
| METHYLCYCLOPENTANE | 13.8 | 3.9 |
| 2,4-DIMETHYLPENTANE | 7.7 | 2.2 |
| CYCLOHEXANE | 3.9 | 1.1 |
| 2-METHYLHEXANE | 11.5 | 3.3 |
| 2,3-DIMETHYLPENTANE | 11.6 | 3.2 |
| 3-METHYLHEXANE | 13.0 | 4.7 |
| 2,2,4-TRIMETHYLPENTANE | 18.7 | 5.5 |
| n-HEPTANE | 12.6 | 3.2 |
| METHYLCYCLOHEXANE | 6.1 | 2.1 |
| 2,5-DIMETHYLHEXANE | 3.7 | 1.2 |
| 2,4-DIMETHYLHEXANE | 4.2 | 1.4 |
| 2,3,4-TRIMETHYLPENTANE | 5.5 | 1.5 |
| 2-METHYLHEPTANE | 4.9 | 1.7 |
| 3-METHYLHEPTANE | 5.6 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 2.5 | 0.6 |
| n-OCTANE | 4.3 | 1.5 |
| 2,4-DIMETHYLHEPTANE | 0.4 | * |
| 4-METHYLOCTANE | 3.3 | 1.3 |
| 3-METHYLOCTANE | 2.0 | 0.6 |
| n-NONANE | 3.4 | 1.0 |
| 4-METHYLNONANE | * | * |
| n-DECANE | 5.1 | 1.0 |
| SUM OTHER PARAFFINS | 56.7 | 21.0 |

| | | |
|---|---|---|
| OLEFINS | | |
| ETHYLENE | 57.4 | 16.2 |
| PROPENE | 16.9 | 5.6 |
| 2-METHYLPROPYLENE,BUTENE-1 | 9.9 | 3.4 |
| 1,3-BUTADIENE | 2.6 | 0.8 |
| t-2-BUTENE | 2.7 | 1.2 |
| c-2-BUTENE | 2.2 | 0.8 |
| 1-PENTENE | 4.9 | 1.0 |
| 2-METHYL-1-BUTENE | 4.4 | 1.6 |
| ISOPRENE | 1.8 | 0.5 |
| t-2-PENTENE | 5.2 | 1.8 |
| c-2-PENTENE | 5.6 | 1.5 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.2 | 0.3 |
| 2-METHYL-2-PENTENE | 2.7 | 0.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 6.6 | 0.7 |
| a-PINENE | 1.0 | * |
| SUM OTHER OLEFINS | 53.9 | 31.6 |
| AROMATICS | | |
| BENZENE | 35.3 | 9.0 |
| TOLUENE | 74.4 | 27.3 |
| ETHYLBENZENE | 12.4 | 4.1 |
| m&p-XYLENE | 40.3 | 13.2 |
| o-XYLENE | 14.6 | 4.5 |
| n-PROPYLBENZENE | 3.2 | 1.1 |
| m-ETHYLTOLUENE | 10.3 | 3.6 |
| p-ETHYLTOLUENE | 5.2 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 5.9 | 1.9 |
| o-ETHYLTOLUENE | 5.2 | 1.9 |
| 1,2,4-TRIMETHYLBENZENE | 17.0 | 5.9 |
| n-DECANE | 6.2 | 3.0 |
| 1,4-DIETHYLBENZENE | 4.9 | 1.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.9 | 1.0 |
| SUM OTHER AROMATICS | 58.3 | 22.4 |
| SUMMARY | | |
| ACETYLENE | 39.3 | 11.8 |
| SUM UNKNOWNS | 0.3 | * |
| SUM PARAFFINS | 613.8 | 184.1 |
| SUM OLEFINS | 179.7 | 68.5 |
| SUM AROMATICS | 297.7 | 103.2 |
| SUM HYDROCARBONS | 1131.0 | 367.7 |

TABLE A-25a. Hydrocarbon concentration data for KANSAS CITY, MO

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1014<br>85/06/03 | 1065<br>85/06/06 | 1156<br>85/06/13 | 1293<br>84/07/12 | 1332<br>85/06/28 | 1431<br>85/07/02 | 1471<br>84/07/18 | 1479<br>84/07/23 |
| PARAFFINS | | | | | | | | |
| ETHANE | 9.2 | 25.2 | 37.4 | 105.2 | 55.9 | 20.1 | 68.0 | 57.5 |
| PROPANE | 5.2 | 12.3 | 17.6 | 65.9 | 31.4 | 13.9 | 44.3 | 25.8 |
| ISOBUTANE | 2.5 | 7.1 | 11.1 | 27.5 | 22.8 | 6.0 | 16.2 | 15.9 |
| n-BUTANE | 11.4 | 26.6 | 40.2 | 149.8 | 56.9 | 29.4 | 84.9 | 82.9 |
| ISOPENTANE | 17.6 | 30.3 | 70.0 | 251.2 | 98.3 | 48.5 | 120.0 | 129.7 |
| n-PENTANE | 7.2 | 14.7 | 26.7 | 87.9 | 31.2 | 17.4 | 43.4 | 49.2 |
| 2,2-DIMETHYLBUTANE | 0.6 | 1.3 | 1.2 | 6.6 | 3.3 | 1.6 | 2.7 | 2.9 |
| CYCLOPENTANE | 0.6 | 1.2 | 2.3 | 9.6 | 3.0 | 1.5 | 4.5 | 5.2 |
| 2,3-DIMETHYLBUTANE | 1.4 | 2.8 | 5.8 | 18.3 | 6.9 | 3.5 | 10.5 | 9.1 |
| 2-METHYLPENTANE | 5.9 | 11.3 | 23.0 | 72.0 | 25.5 | 12.8 | 50.1 | 35.7 |
| 3-METHYLPENTANE | 5.0 | 8.2 | 14.4 | 48.7 | 17.6 | 8.0 | 50.2 | 26.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.5 | 7.3 | 15.3 | 53.9 | 13.3 | 8.1 | 125.1 | 30.4 |
| METHYLCYCLOPENTANE | 1.9 | 3.9 | 7.0 | 31.0 | 7.6 | 4.1 | 39.5 | 14.9 |
| 2,4-DIMETHYLPENTANE | 1.2 | 2.6 | 4.8 | 18.8 | 5.8 | 3.0 | 8.9 | 8.3 |
| CYCLOHEXANE | 0.9 | 1.8 | 3.9 | 17.4 | 6.9 | 2.3 | 7.3 | 7.7 |
| 2-METHYLHEXANE | 1.8 | 3.3 | 7.8 | 26.8 | 9.4 | 4.7 | 12.4 | 12.1 |
| 2,3-DIMETHYLPENTANE | 2.3 | 4.5 | 7.4 | 30.7 | 8.9 | 4.7 | 12.6 | 12.0 |
| 3-METHYLHEXANE | 3.5 | 6.4 | 8.2 | 33.2 | 8.9 | 4.7 | 29.4 | 17.7 |
| 2,2,4-TRIMETHYLPENTANE | 3.4 | 7.2 | 14.6 | 55.2 | 17.8 | 9.3 | 21.3 | 19.3 |
| n-HEPTANE | 1.6 | 3.9 | 7.6 | 34.7 | 7.8 | 3.5 | 13.9 | 14.0 |
| METHYLCYCLOHEXANE | 1.0 | 1.8 | 4.1 | 21.5 | 4.1 | 2.1 | 7.8 | 8.3 |
| 2,5-DIMETHYLHEXANE | 0.5 | 1.2 | 2.2 | 8.7 | 2.6 | 1.3 | 4.0 | 4.0 |
| 2,4-DIMETHYLHEXANE | 0.7 | 1.5 | 2.7 | 9.9 | 3.4 | 1.4 | 6.1 | 4.5 |
| 2,3,4-TRIMETHYLPENTANE | 0.8 | 1.8 | 4.3 | 14.5 | 5.2 | 3.5 | 5.3 | 5.1 |
| 2-METHYLHEPTANE | 0.6 | 1.6 | 3.3 | 14.7 | 5.4 | 1.9 | 6.3 | 5.4 |
| 3-METHYLHEPTANE | 0.8 | 1.6 | 3.6 | 15.3 | 4.5 | 2.3 | 6.4 | 6.0 |
| 2,2,5-TRIMETHYLHEXANE | 0.2 | 0.4 | 1.3 | 5.3 | 2.0 | 0.8 | 1.8 | 1.7 |
| n-OCTANE | 0.6 | 1.3 | 3.1 | 20.2 | 5.3 | 1.6 | 7.3 | 4.0 |
| 2,4-DIMETHYLHEPTANE | * | * | * | 1.5 | * | * | 0.6 | * |
| 4-METHYLOCTANE | * | * | 2.2 | 10.8 | 2.9 | 1.4 | 8.7 | 5.3 |
| 3-METHYLOCTANE | 0.3 | 0.7 | 2.1 | 7.4 | 2.4 | 1.4 | 3.5 | 2.5 |
| n-NONANE | 0.7 | 85.3 | 2.2 | 16.0 | 3.1 | 1.5 | 8.7 | 7.7 |
| 4-METHYLNONANE | * | * | * | 2.6 | * | * | * | * |
| n-DECANE | 1.5 | 3.0 | 4.1 | 14.9 | 3.8 | 1.9 | 9.5 | 10.2 |
| SUM OTHER PARAFFINS | 119.2 | 76.7 | 46.2 | 200.2 | 78.2 | 25.7 | 145.1 | 90.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 7.2 | 17.9 | 34.2 | 62.6 | 36.7 | 21.4 | 46.3 | 40.7 |
| PROPENE | 2.3 | 4.4 | 12.1 | 22.0 | 12.6 | 6.3 | 15.1 | 14.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 1.9 | 3.5 | 7.4 | 16.1 | 7.0 | 4.4 | 11.7 | 10.4 |
| 1,3-BUTADIENE | 0.5 | 0.9 | 2.5 | 4.7 | 2.6 | 1.3 | 3.4 | 3.2 |
| t-2-BUTENE | 0.6 | 1.2 | 2.5 | 9.0 | 2.8 | 1.5 | 6.5 | 5.0 |
| c-2-BUTENE | 0.4 | 0.8 | 1.5 | 6.7 | 1.6 | 0.9 | 4.4 | 3.7 |
| 1-PENTENE | * | * | * | 6.2 | 1.9 | 1.0 | 3.5 | 2.8 |
| 2-METHYL-1-BUTENE | 0.7 | 1.4 | 2.6 | 10.3 | 7.1 | 1.8 | 5.6 | 5.5 |
| ISOPRENE | 0.6 | 0.4 | 1.6 | 4.3 | 1.7 | 1.6 | 2.8 | 2.1 |
| t-2-PENTENE | 1.0 | 1.6 | * | 12.1 | 3.5 | 2.2 | 13.9 | 5.9 |
| c-2-PENTENE | 0.7 | 0.3 | 0.6 | 11.0 | 4.5 | 3.1 | 6.3 | 6.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 0.1 | 2.2 | 3.1 | 2.3 | 0.4 | 1.1 | 2.8 |
| 2-METHYL-2-PENTENE | 0.7 | 1.0 | 1.6 | 6.0 | 1.8 | 0.9 | 3.0 | 2.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.7 | 1.4 | 2.4 | 14.4 | 2.5 | 1.1 | 5.4 | 3.5 |
| a-PINENE | 8.0 | 8.4 | 4.8 | 3.2 | 6.6 | 3.6 | 2.6 | 2.1 |
| SUM OTHER OLEFINS | 47.7 | 53.5 | 47.4 | 127.4 | 29.2 | 24.2 | 178.5 | 77.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 4.3 | 9.0 | 16.8 | 34.8 | 17.6 | 10.3 | 19.7 | 20.2 |
| TOLUENE | 13.6 | 27.9 | 53.5 | 181.9 | 49.6 | 27.4 | 83.5 | 59.5 |
| ETHYLBENZENE | 2.0 | 4.7 | 8.6 | 21.9 | 10.5 | 5.1 | 15.5 | 16.0 |
| m&p-XYLENE | 7.2 | 15.0 | 27.8 | 65.3 | 31.3 | 16.8 | 46.9 | 35.5 |
| o-XYLENE | 3.1 | 5.1 | 9.8 | 22.0 | 12.7 | 5.8 | 16.3 | 11.9 |
| n-PROPYLBENZENE | 1.3 | 1.8 | 2.7 | 7.1 | 3.5 | 1.2 | 4.9 | 4.1 |
| m-ETHYLTOLUENE | 4.9 | 13.7 | 8.0 | 18.2 | 9.0 | 4.1 | 11.7 | 10.2 |
| p-ETHYLTOLUENE | 1.2 | 2.3 | 4.1 | 11.3 | 4.5 | 2.4 | 7.2 | 6.1 |
| 1,3,5-TRIMETHYLBENZENE | 1.1 | 1.9 | 4.4 | 9.6 | 4.6 | 2.3 | 6.8 | 4.0 |
| o-ETHYLTOLUENE | 2.9 | 3.4 | 4.2 | 10.9 | 4.3 | 2.1 | 7.0 | 6.3 |
| 1,2,4-TRIMETHYLBENZENE | 4.1 | 6.2 | 11.6 | 28.5 | 11.9 | 7.3 | 18.0 | 17.7 |
| n-DECANE | * | 965.4 | 214.5 | 11.6 | * | 36.5 | 9.4 | 7.4 |
| 1,4-DIETHYLBENZENE | 1.6 | 2.2 | 3.8 | 9.8 | 4.5 | 2.4 | 6.0 | 5.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.9 | 3.4 | 3.6 | 13.1 | 3.3 | 1.6 | 8.4 | 5.9 |
| SUM OTHER AROMATICS | 469.5 | 121.7 | 39.1 | 135.5 | 256.9 | 25.8 | 94.2 | 66.4 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 6.3 | 10.9 | 29.5 | 48.2 | 26.1 | 19.6 | 30.4 | 27.5 |
| SUM UNKNOWNS | 9.2 | 123.6 | 7.2 | * | 7.3 | 7.9 | 13.6 | 0.8 |
| SUM PARAFFINS | 216.1 | 360.4 | 409.0 | 1509.5 | 563.6 | 255.4 | 987.9 | 732.6 |
| SUM OLEFINS | 73.6 | 97.4 | 124.0 | 319.9 | 125.1 | 76.2 | 310.8 | 188.9 |
| SUM AROMATICS | 520.1 | 1184.2 | 413.1 | 582.0 | 424.9 | 151.9 | 356.0 | 277.3 |
| SUM HYDROCARBONS | 829.3 | 1779.9 | 983.2 | 2462.5 | 1147.8 | 511.0 | 1700.4 | 1228.5 |

TABLE A-25b. Hydrocarbon concentration data for KANSAS CITY, MO

| Compound | ID Number and Sample Date<br>1506<br>84/07/25 | 1556<br>85/07/12 | 1599<br>84/08/03 | 1633<br>84/08/07 | 1671<br>85/07/19 | 1721<br>85/07/24 | 1797<br>84/08/15 | 1804<br>85/07/30 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 73.9 | 39.3 | 13.3 | 29.5 | 58.5 | 17.9 | 30.7 | 15.0 |
| PROPANE | 39.3 | 26.8 | 16.0 | 31.6 | 36.2 | 10.6 | 27.5 | 7.7 |
| ISOBUTANE | 14.9 | 10.7 | 9.3 | 9.7 | 12.1 | 4.9 | 13.4 | 4.5 |
| n-BUTANE | 68.6 | 45.5 | 26.4 | 35.5 | 55.5 | 20.0 | 60.6 | 19.8 |
| ISOPENTANE | 110.4 | 68.4 | 39.3 | 38.4 | 99.9 | 31.4 | 78.8 | 29.3 |
| n-PENTANE | 39.9 | 22.7 | 15.5 | 18.3 | 27.0 | 11.0 | 30.1 | 9.1 |
| 2,2-DIMETHYLBUTANE | 2.5 | 2.2 | 2.1 | 0.8 | 2.8 | 0.9 | 2.0 | 0.8 |
| CYCLOPENTANE | 4.6 | 2.0 | 1.4 | 1.6 | 3.2 | 3.5 | 2.8 | 1.3 |
| 2,3-DIMETHYLBUTANE | 9.2 | 5.1 | 2.7 | 2.6 | 7.4 | 2.6 | 5.6 | 2.1 |
| 2-METHYLPENTANE | 41.2 | 19.1 | 10.5 | 10.5 | 27.2 | 9.7 | 21.6 | 9.1 |
| 3-METHYLPENTANE | 41.5 | 13.5 | 8.7 | 7.5 | 21.8 | 7.5 | 17.6 | 8.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 100.0 | 14.5 | 7.4 | 7.4 | 20.4 | 7.2 | 13.6 | 12.3 |
| METHYLCYCLOPENTANE | 32.0 | 7.2 | 4.1 | 4.4 | 10.7 | 3.7 | 7.6 | 3.4 |
| 2,4-DIMETHYLPENTANE | 7.7 | 4.8 | 2.3 | 2.2 | 7.2 | 2.6 | 4.4 | 1.9 |
| CYCLOHEXANE | 8.1 | 3.7 | 2.1 | 2.1 | 5.6 | 1.9 | 4.0 | 1.7 |
| 2-METHYLHEXANE | 12.6 | 8.8 | 4.0 | 3.0 | 8.0 | 5.5 | 6.9 | 4.8 |
| 2,3-DIMETHYLPENTANE | 11.7 | 7.4 | 4.2 | 2.7 | 9.8 | 4.0 | 6.8 | 3.2 |
| 3-METHYLHEXANE | 20.2 | 8.6 | 7.1 | 3.7 | 9.9 | 5.0 | 9.5 | 3.1 |
| 2,2,4-TRIMETHYLPENTANE | 18.1 | 13.5 | 7.7 | 6.2 | 21.2 | 7.1 | 11.9 | 5.6 |
| n-HEPTANE | 12.9 | 7.5 | 4.5 | 3.5 | 8.0 | 3.3 | 7.8 | 2.1 |
| METHYLCYCLOHEXANE | 6.8 | 3.4 | 2.2 | 2.5 | 4.5 | 1.8 | 3.4 | 1.4 |
| 2,5-DIMETHYLHEXANE | 4.4 | 2.2 | 1.1 | 1.0 | 3.7 | 1.3 | 2.1 | 1.0 |
| 2,4-DIMETHYLHEXANE | 4.7 | 2.5 | 1.6 | 1.3 | 4.0 | 1.3 | 2.5 | 1.0 |
| 2,3,4-TRIMETHYLPENTANE | 5.1 | 3.7 | 1.8 | 1.4 | 6.0 | 2.1 | 3.0 | 1.6 |
| 2-METHYLHEPTANE | 6.7 | 2.8 | 1.7 | 1.2 | 5.0 | 1.4 | 3.2 | 0.9 |
| 3-METHYLHEPTANE | 7.1 | 3.1 | 1.9 | 1.7 | 5.5 | 1.6 | 3.4 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | 2.3 | 1.4 | 0.6 | 0.5 | 2.5 | 0.7 | 1.1 | 0.6 |
| n-OCTANE | 8.7 | 2.1 | 1.5 | 2.0 | 6.6 | 1.2 | 2.7 | 2.9 |
| 2,4-DIMETHYLHEPTANE | 0.6 | * | * | * | * | * | * | 0.6 |
| 4-METHYLOCTANE | 7.3 | 2.0 | * | 0.6 | 3.4 | 0.9 | 2.5 | 0.9 |
| 3-METHYLOCTANE | 4.4 | 1.8 | 1.3 | 0.7 | 3.6 | 0.7 | 1.4 | 1.6 |
| n-NONANE | 8.3 | 2.8 | 1.9 | 1.6 | 4.7 | 1.3 | 6.7 | 1.3 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 8.1 | 5.4 | 2.1 | 1.6 | 9.0 | 3.5 | 2.7 | 1.4 |
| SUM OTHER PARAFFINS | 129.0 | 38.7 | 34.1 | 24.4 | 57.7 | 20.3 | 37.3 | 12.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 47.7 | 19.7 | 8.4 | 13.9 | 35.7 | 12.4 | 26.9 | 9.1 |
| PROPENE | 15.0 | 6.6 | 5.9 | 4.1 | 11.8 | 4.3 | 9.3 | 2.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.3 | 5.3 | 4.3 | 3.5 | 7.2 | 3.1 | 7.2 | 2.4 |
| 1,3-BUTADIENE | 3.3 | 0.7 | 1.3 | 0.4 | 1.4 | 0.8 | 2.0 | * |
| t-2-BUTENE | 4.2 | * | 1.4 | 1.0 | 2.4 | 1.0 | 2.9 | * |
| c-2-BUTENE | 2.9 | 1.0 | 1.0 | 0.8 | 1.7 | 0.6 | 2.0 | 0.4 |
| 1-PENTENE | 3.0 | 1.2 | 1.3 | 0.7 | 2.9 | 0.7 | 2.4 | 0.6 |
| 2-METHYL-1-BUTENE | 4.5 | 3.7 | 1.6 | 1.5 | 7.2 | 1.1 | 3.4 | 1.0 |
| ISOPRENE | 2.1 | 2.4 | 0.8 | 1.0 | 2.1 | 2.9 | 1.6 | 0.9 |
| t-2-PENTENE | 11.6 | 2.4 | 1.7 | 1.6 | 3.9 | 1.2 | 3.8 | 1.0 |
| c-2-PENTENE | 4.3 | 2.8 | 1.8 | 4.2 | 11.3 | 2.2 | 3.8 | 1.8 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.3 | 2.6 | 0.4 | 1.3 | 0.3 | 0.1 | 0.2 | 0.7 |
| 2-METHYL-2-PENTENE | 2.7 | 0.8 | 0.9 | 0.5 | 1.6 | 0.5 | 1.7 | 0.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.2 | 3.6 | 0.9 | 0.8 | 3.1 | 1.5 | 1.3 | 1.1 |
| a-PINENE | 1.7 | 3.1 | 0.5 | 0.5 | 2.9 | 0.8 | 0.2 | 0.1 |
| SUM OTHER OLEFINS | 75.7 | 28.8 | 35.6 | 35.0 | 35.1 | 15.4 | 41.8 | 15.6 |
| AROMATICS | | | | | | | | |
| BENZENE | 20.3 | 12.7 | 7.9 | 5.8 | 19.1 | 7.8 | 13.1 | 6.5 |
| TOLUENE | 114.6 | 43.6 | 21.3 | 20.5 | 85.3 | 20.2 | 34.4 | 21.9 |
| ETHYLBENZENE | 18.0 | 6.8 | 4.1 | 3.5 | 11.8 | 3.9 | 7.4 | 4.6 |
| m&p-XYLENE | 54.8 | 20.9 | 13.8 | 9.5 | 37.0 | 11.9 | 22.5 | 15.5 |
| o-XYLENE | 15.8 | 7.7 | 4.1 | 3.4 | 15.5 | 6.3 | 7.3 | 6.8 |
| n-PROPYLBENZENE | 4.5 | 1.8 | 1.5 | 1.1 | 3.2 | 0.7 | 2.1 | 0.7 |
| m-ETHYLTOLUENE | 10.5 | 5.5 | 3.7 | 3.0 | 9.4 | 3.1 | 5.8 | 2.8 |
| p-ETHYLTOLUENE | 6.3 | 2.9 | 2.5 | 2.1 | 5.0 | 1.5 | 3.6 | 1.5 |
| 1,3,5-TRIMETHYLBENZENE | 6.4 | 3.4 | 1.3 | 1.9 | 6.3 | 2.3 | 3.7 | 1.9 |
| o-ETHYLTOLUENE | 6.2 | 3.2 | 2.5 | 1.9 | 5.0 | 1.6 | 4.0 | 1.4 |
| 1,2,4-TRIMETHYLBENZENE | 17.5 | 10.1 | 5.7 | 5.3 | 15.7 | 8.0 | 9.1 | 5.1 |
| n-DECANE | 7.0 | 2.6 | 3.7 | 2.3 | 4.3 | 0.8 | 3.3 | 0.7 |
| 1,4-DIETHYLBENZENE | 5.7 | 3.3 | 2.3 | 1.8 | 4.7 | 1.3 | 3.5 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 8.3 | 3.3 | 2.0 | 1.8 | 4.5 | 1.2 | 2.0 | 0.8 |
| SUM OTHER AROMATICS | 79.1 | 33.2 | 29.4 | 25.9 | 45.9 | 19.7 | 36.4 | 16.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 34.9 | 20.6 | 5.9 | 8.5 | 29.0 | 13.8 | 19.0 | 9.6 |
| SUM UNKNOWNS | 8.9 | 17.1 | 2.1 | 2.0 | 5.3 | 12.1 | 1.1 | 4.3 |
| SUM PARAFFINS | 874.0 | 404.6 | 241.8 | 263.1 | 570.0 | 200.0 | 436.8 | 175.5 |
| SUM OLEFINS | 194.2 | 85.3 | 68.6 | 71.5 | 131.3 | 49.3 | 111.1 | 38.0 |
| SUM AROMATICS | 375.5 | 161.4 | 106.5 | 90.4 | 273.4 | 91.1 | 158.9 | 88.5 |
| SUM HYDROCARBONS | 1489.0 | 689.2 | 425.3 | 435.6 | 1009.2 | 366.5 | 727.1 | 316.0 |

TABLE A-25c. Hydrocarbon concentration data for KANSAS CITY, MO

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1900 85/08/05 | 1984 84/08/28 | 2034 85/08/12 | 2181 84/09/10 | 2190 85/08/22 | 2276 85/08/27 | 2283 85/08/28 | 2297 84/09/18 |
| PARAFFINS | | | | | | | | |
| ETHANE | 20.8 | 46.3 | 15.3 | 21.6 | 14.8 | 91.1 | 31.3 | 35.6 |
| PROPANE | 15.0 | 43.6 | 9.9 | 14.7 | 11.1 | 27.0 | 13.6 | 17.1 |
| ISOBUTANE | 6.7 | 13.7 | 3.9 | 6.4 | 3.9 | 11.3 | 5.4 | 8.6 |
| n-BUTANE | 27.1 | 46.9 | 17.8 | 30.4 | 19.4 | 57.8 | 28.0 | 54.6 |
| ISOPENTANE | 39.6 | 43.7 | 23.1 | 35.4 | 27.7 | 91.3 | 45.0 | 53.7 |
| n-PENTANE | 13.9 | 21.7 | 8.5 | 16.8 | 8.0 | 26.0 | 14.8 | 23.3 |
| 2,2-DIMETHYLBUTANE | 1.3 | 1.8 | 0.7 | 0.8 | 0.7 | 2.7 | 1.2 | 1.6 |
| CYCLOPENTANE | 1.9 | 1.8 | 2.6 | 1.5 | 1.8 | 2.5 | 2.4 | 2.5 |
| 2,3-DIMETHYLBUTANE | 3.1 | 3.4 | 2.1 | 3.1 | 2.3 | 6.7 | 3.5 | 4.9 |
| 2-METHYLPENTANE | 11.7 | 16.0 | 7.8 | 14.1 | 7.3 | 24.9 | 12.5 | 19.6 |
| 3-METHYLPENTANE | 7.8 | 12.1 | 6.6 | 10.0 | 4.4 | 15.3 | 8.0 | 14.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.1 | 9.9 | 7.0 | 8.7 | 4.4 | 19.0 | 7.6 | 12.5 |
| METHYLCYCLOPENTANE | 4.0 | 5.3 | 3.3 | 5.0 | 2.6 | 10.3 | 4.5 | 7.4 |
| 2,4-DIMETHYLPENTANE | 2.8 | 2.5 | 1.7 | 2.8 | 1.7 | 6.4 | 3.2 | 4.1 |
| CYCLOHEXANE | 2.1 | 3.1 | 1.6 | 2.6 | 1.2 | 4.8 | 2.5 | 4.1 |
| 2-METHYLHEXANE | 4.2 | 4.2 | 7.6 | 4.3 | 5.0 | 12.0 | 7.4 | 6.8 |
| 2,3-DIMETHYLPENTANE | 4.6 | 4.3 | * | 3.8 | 3.8 | 10.4 | 5.2 | 6.6 |
| 3-METHYLHEXANE | 4.4 | 8.6 | 4.3 | 5.6 | 3.3 | 11.2 | 6.1 | 8.0 |
| 2,2,4-TRIMETHYLPENTANE | 8.0 | 7.7 | 4.3 | 8.0 | 4.9 | 17.6 | 8.2 | 13.4 |
| n-HEPTANE | 3.1 | 5.4 | 4.7 | 4.4 | 3.0 | 11.5 | 4.9 | 6.7 |
| METHYLCYCLOHEXANE | 2.0 | 3.2 | 2.9 | 3.4 | 1.4 | 5.2 | 3.7 | 3.8 |
| 2,5-DIMETHYLHEXANE | 1.3 | 1.3 | 0.2 | 1.6 | 0.9 | 3.2 | 2.0 | 2.3 |
| 2,4-DIMETHYLHEXANE | 1.5 | 1.7 | 0.8 | 1.8 | 0.8 | 3.5 | 1.8 | 2.8 |
| 2,3,4-TRIMETHYLPENTANE | 2.5 | 1.7 | 1.8 | 2.0 | 1.7 | 5.3 | 2.9 | 3.4 |
| 2-METHYLHEPTANE | 1.0 | 1.4 | 1.5 | 3.2 | 0.6 | 6.1 | 2.9 | 3.7 |
| 3-METHYLHEPTANE | 1.9 | 2.2 | 1.2 | 3.1 | 1.3 | 6.6 | 2.3 | 3.8 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 0.6 | 0.4 | 1.0 | 0.5 | 2.0 | 0.8 | 1.3 |
| n-OCTANE | 2.3 | 2.0 | 1.6 | 4.4 | * | 6.5 | * | 2.5 |
| 2,4-DIMETHYLHEPTANE | 0.8 | 0.1 | 0.7 | * | 0.8 | * | * | 0.2 |
| 4-METHYLOCTANE | 1.1 | 1.8 | 0.6 | 3.2 | 0.7 | 5.1 | 1.4 | 1.7 |
| 3-METHYLOCTANE | 0.6 | 0.8 | 0.5 | 1.8 | 0.8 | 3.9 | 1.2 | 1.4 |
| n-NONANE | 1.2 | 1.8 | 0.9 | 3.8 | 0.9 | 7.7 | 2.5 | 2.7 |
| 4-METHYLNONANE | * | 4.7 | * | * | * | * | * | * |
| n-DECANE | 0.8 | 1.7 | 1.7 | 4.8 | 0.7 | 11.6 | 3.8 | 3.7 |
| SUM OTHER PARAFFINS | 12.2 | 32.8 | 12.2 | 42.6 | 14.1 | 61.4 | 26.0 | 42.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 22.2 | 16.3 | 11.6 | 18.5 | 12.0 | 41.0 | 22.2 | 26.0 |
| PROPENE | 6.4 | 4.7 | 3.5 | 5.9 | 3.9 | 14.2 | 6.1 | 8.6 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.4 | 3.4 | 2.2 | 4.3 | 2.6 | 8.6 | 4.7 | 6.0 |
| 1,3-BUTADIENE | 1.4 | 0.6 | 0.6 | 0.6 | 0.3 | 2.1 | 0.6 | 1.1 |
| t-2-BUTENE | 1.4 | 1.0 | 0.7 | 1.0 | 0.6 | 3.2 | 1.3 | 1.6 |
| c-2-BUTENE | 0.9 | 0.8 | 0.4 | 0.9 | 0.6 | 2.0 | 0.9 | 1.4 |
| 1-PENTENE | 1.0 | 1.9 | 0.5 | 1.4 | 0.6 | 2.4 | 1.1 | 1.6 |
| 2-METHYL-1-BUTENE | 1.8 | 1.6 | 1.0 | 1.7 | 1.1 | 6.1 | 1.8 | 2.5 |
| ISOPRENE | 1.3 | 0.8 | 3.8 | 1.8 | 2.3 | 2.5 | 1.3 | 1.1 |
| t-2-PENTENE | 2.1 | 1.7 | 1.0 | 2.0 | 1.3 | 4.7 | 2.0 | 3.0 |
| c-2-PENTENE | 2.9 | 2.0 | 1.7 | 2.6 | 1.9 | 10.6 | 3.0 | 3.9 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.8 | * | 0.2 | 0.1 | * | 2.0 | 0.9 | 0.5 |
| 2-METHYL-2-PENTENE | 0.8 | 0.5 | 0.3 | 1.1 | 0.5 | 2.0 | 0.8 | 1.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.8 | 0.7 | 0.8 | 1.1 | 0.8 | 2.4 | 1.4 | 1.6 |
| a-PINENE | 0.0 | * | 0.5 | 1.0 | 0.1 | 0.6 | 0.3 | * |
| SUM OTHER OLEFINS | 10.0 | 53.1 | 9.6 | 41.3 | 9.7 | 33.1 | 19.9 | 50.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 10.5 | 7.7 | 5.2 | 8.6 | 7.1 | 22.5 | 10.8 | 12.3 |
| TOLUENE | 24.8 | 29.3 | 15.7 | 54.8 | 19.5 | 129.2 | 33.1 | 45.5 |
| ETHYLBENZENE | 4.4 | 4.3 | 2.4 | 9.7 | 3.6 | 11.8 | 5.1 | 13.2 |
| m&p-XYLENE | 13.9 | 12.0 | 7.7 | 31.1 | 10.7 | 37.0 | 16.9 | 39.7 |
| o-XYLENE | 5.5 | 4.2 | 3.5 | 9.2 | 4.4 | 13.4 | 6.7 | 9.5 |
| n-PROPYLBENZENE | 0.8 | 1.3 | 0.5 | 2.4 | 0.7 | 2.6 | 1.1 | 2.3 |
| m-ETHYLTOLUENE | 3.8 | 3.6 | 2.1 | 6.7 | 2.2 | 9.2 | 3.9 | 6.9 |
| p-ETHYLTOLUENE | 1.8 | 2.1 | 1.1 | 3.6 | 0.7 | 3.8 | 1.5 | 3.8 |
| 1,3,5-TRIMETHYLBENZENE | 1.7 | 1.7 | 1.0 | 4.2 | 1.4 | 6.5 | 2.5 | 4.1 |
| o-ETHYLTOLUENE | 1.9 | 2.1 | 1.0 | 3.6 | 1.2 | 6.4 | 2.6 | 3.4 |
| 1,2,4-TRIMETHYLBENZENE | 12.7 | 5.8 | 4.1 | 11.6 | * | 12.0 | 1.4 | 11.8 |
| n-DECANE | 1.7 | 1.5 | 0.6 | 4.7 | 0.9 | 6.4 | 1.9 | 4.7 |
| 1,4-DIETHYLBENZENE | 1.5 | 2.2 | 1.0 | 2.8 | 1.2 | 5.3 | 2.1 | 3.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.9 | 1.7 | 0.6 | 3.9 | * | 5.5 | * | 1.8 |
| SUM OTHER AROMATICS | 20.0 | 35.1 | 7.5 | 45.5 | 12.8 | 47.5 | 20.7 | 46.0 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 13.0 | 9.5 | 6.6 | 15.0 | 12.4 | 36.4 | 14.9 | 23.9 |
| SUM UNKNOWNS | 2.8 | 2.4 | 2.6 | * | 1.4 | 7.5 | 1.5 | 2.2 |
| SUM PARAFFINS | 220.9 | 361.4 | 161.4 | 277.7 | 157.7 | 589.4 | 267.6 | 382.8 |
| SUM OLEFINS | 59.0 | 89.6 | 39.2 | 86.0 | 38.8 | 138.1 | 69.0 | 111.3 |
| SUM AROMATICS | 106.7 | 115.2 | 54.7 | 203.0 | 66.9 | 319.6 | 111.0 | 209.3 |
| SUM HYDROCARBONS | 402.5 | 578.4 | 264.6 | 581.9 | 277.5 | 1091.1 | 464.3 | 729.6 |

## TABLE A-25d. Hydrocarbon concentration data for KANSAS CITY, MO

| Compound | ID Number and Sample Date<br>2332RA0<br>85/09/04 | <br>2415<br>85/09/09 | <br>2487<br>84/09/28 | <br>2542<br>85/09/18 | <br>2632<br>85/09/24 |
|---|---|---|---|---|---|
| PARAFFINS | | | | | |
| ETHANE | 45.1 | 10.8 | 12.0 | 18.8 | 17.8 |
| PROPANE | 18.5 | 5.8 | 9.2 | 11.8 | 9.9 |
| ISOBUTANE | 10.5 | 2.2 | 4.7 | 5.4 | 6.4 |
| n-BUTANE | 46.0 | 11.2 | 25.9 | 23.1 | 23.2 |
| ISOPENTANE | 70.1 | 16.5 | 22.5 | 25.7 | 25.3 |
| n-PENTANE | 20.3 | 4.6 | 9.1 | 8.0 | 8.1 |
| 2,2-DIMETHYLBUTANE | 1.9 | 0.4 | 0.7 | 1.1 | 1.0 |
| CYCLOPENTANE | 2.2 | 0.4 | 1.0 | 0.6 | 0.7 |
| 2,3-DIMETHYLBUTANE | 5.4 | 1.3 | 1.9 | 2.0 | 1.9 |
| 2-METHYLPENTANE | 19.2 | 4.6 | 10.2 | 8.2 | 7.3 |
| 3-METHYLPENTANE | 11.8 | 3.8 | 7.3 | 5.9 | 4.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 11.9 | 3.0 | 9.5 | 6.0 | 4.2 |
| METHYLCYCLOPENTANE | 6.9 | 1.7 | 3.9 | 2.8 | 2.5 |
| 2,4-DIMETHYLPENTANE | 5.3 | 1.3 | 1.7 | 1.9 | 1.9 |
| CYCLOHEXANE | 3.8 | 0.8 | 1.8 | 1.4 | 1.4 |
| 2-METHYLHEXANE | 8.6 | * | 2.8 | 10.1 | * |
| 2,3-DIMETHYLPENTANE | 9.5 | 5.6 | 3.1 | * | 7.2 |
| 3-METHYLHEXANE | 8.4 | 1.9 | 4.0 | 5.5 | 2.6 |
| 2,2,4-TRIMETHYLPENTANE | 15.6 | 3.8 | 5.3 | 5.0 | 5.1 |
| n-HEPTANE | 6.3 | 1.1 | 2.8 | 4.7 | 2.9 |
| METHYLCYCLOHEXANE | 4.3 | 0.8 | 1.5 | 2.2 | 1.3 |
| 2,5-DIMETHYLHEXANE | 2.4 | 0.3 | 0.9 | 0.2 | 0.2 |
| 2,4-DIMETHYLHEXANE | 2.8 | 0.5 | 1.1 | 1.0 | 0.9 |
| 2,3,4-TRIMETHYLPENTANE | 4.4 | 1.4 | 1.4 | 1.7 | 1.5 |
| 2-METHYLHEPTANE | 3.3 | 0.4 | 1.4 | 1.5 | 1.4 |
| 3-METHYLHEPTANE | 3.6 | 0.8 | 1.6 | 1.3 | 1.3 |
| 2,2,5-TRIMETHYLHEXANE | 1.3 | 0.4 | 0.5 | 0.5 | 0.6 |
| n-OCTANE | 2.9 | 0.7 | 1.3 | 2.6 | 1.7 |
| 2,4-DIMETHYLHEPTANE | 1.0 | 1.2 | 0.1 | 0.5 | 1.3 |
| 4-METHYLOCTANE | 2.2 | 0.6 | 1.9 | 0.7 | 0.8 |
| 3-METHYLOCTANE | 1.8 | 0.3 | 0.9 | 0.5 | 0.7 |
| n-NONANE | 3.2 | 0.5 | 1.1 | 1.1 | 1.3 |
| 4-METHYLNONANE | * | * | * | * | * |
| n-DECANE | 6.3 | 1.1 | 1.1 | 1.5 | 1.8 |
| SUM OTHER PARAFFINS | 31.8 | 9.6 | 15.2 | 9.6 | 8.8 |

| | | | | | |
|---|---|---|---|---|---|
| OLEFINS | | | | | |
| ETHYLENE | 34.3 | 11.9 | 18.5 | 12.4 | 13.1 |
| PROPENE | 9.4 | 3.0 | 5.9 | 3.0 | 4.1 |
| 2-METHYLPROPYLENE,BUTENE-1 | 7.3 | 19.6 | 3.4 | 2.1 | 2.7 |
| 1,3-BUTADIENE | 1.9 | 0.3 | 1.2 | 0.3 | 0.5 |
| t-2-BUTENE | 2.4 | 0.4 | 1.1 | 0.7 | 0.8 |
| c-2-BUTENE | 1.5 | 0.3 | 0.6 | 0.4 | 0.5 |
| 1-PENTENE | 1.7 | 0.1 | 0.6 | 0.5 | 0.5 |
| 2-METHYL-1-BUTENE | 3.0 | 0.1 | 1.1 | 1.1 | 1.0 |
| ISOPRENE | 2.1 | * | 0.5 | 1.7 | 0.2 |
| t-2-PENTENE | 3.4 | 0.1 | 1.2 | 0.9 | 1.0 |
| c-2-PENTENE | 7.7 | 1.1 | 1.4 | 2.7 | 1.5 |
| 2-METHYL-1-PENTENE,1-HEXENE | 3.1 | 0.1 | * | 0.1 | 0.2 |
| 2-METHYL-2-PENTENE | 1.3 | * | 0.7 | 0.3 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.8 | 0.5 | 0.8 | 1.3 | 0.4 |
| a-PINENE | 0.4 | * | * | 0.2 | * |
| SUM OTHER OLEFINS | 18.2 | 10.5 | 24.6 | 9.4 | 7.5 |
| AROMATICS | | | | | |
| BENZENE | 17.0 | 4.0 | 6.6 | 6.0 | 6.0 |
| TOLUENE | 67.3 | 10.4 | 19.7 | 24.4 | 17.5 |
| ETHYLBENZENE | 8.5 | 2.9 | 3.9 | 2.6 | 3.0 |
| m&p-XYLENE | 25.7 | 9.1 | 11.8 | 8.8 | 9.9 |
| o-XYLENE | 9.8 | 3.7 | 3.8 | 4.1 | 4.1 |
| n-PROPYLBENZENE | 2.6 | 0.5 | 1.0 | 0.6 | 0.9 |
| m-ETHYLTOLUENE | 8.2 | 1.6 | 3.3 | 2.4 | 2.8 |
| p-ETHYLTOLUENE | 4.2 | 0.4 | 1.6 | 1.2 | 1.4 |
| 1,3,5-TRIMETHYLBENZENE | 5.0 | 1.2 | 1.3 | 1.4 | 1.8 |
| o-ETHYLTOLUENE | 3.9 | 1.1 | 1.6 | 1.1 | 1.3 |
| 1,2,4-TRIMETHYLBENZENE | 16.3 | 6.2 | 5.2 | 5.5 | 6.4 |
| n-DECANE | 3.8 | 0.5 | 1.3 | 0.8 | 0.8 |
| 1,4-DIETHYLBENZENE | 3.3 | 0.8 | 1.7 | 1.1 | 1.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | * | 0.5 | 1.4 | 0.9 | * |
| SUM OTHER AROMATICS | 28.5 | 10.4 | 20.0 | 6.8 | 7.4 |
| SUMMARY | | | | | |
| ACETYLENE | 21.9 | 5.7 | 10.8 | 8.9 | 12.5 |
| SUM UNKNOWNS | 2.0 | 1.7 | 1.6 | 3.2 | 1.8 |
| SUM PARAFFINS | 400.4 | 100.9 | 170.8 | 174.5 | 159.3 |
| SUM OLEFINS | 100.2 | 48.4 | 62.2 | 37.8 | 35.1 |
| SUM AROMATICS | 204.5 | 53.8 | 84.7 | 68.4 | 65.2 |
| SUM HYDROCARBONS | 729.1 | 211.0 | 330.3 | 293.0 | 274.0 |

## TABLE A-26a. Hydrocarbon concentration data for LAKE CHARLES, LA

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1049 85/06/05 | 1058 85/06/07 | 1103 85/06/11 | 1215 85/06/20 | 1316 85/06/26 | 1417 85/07/03 | 1579 85/07/15 | 1717 85/07/23 |
| PARAFFINS | | | | | | | | |
| ETHANE | 70.4 | 32.2 | 38.4 | 41.8 | 184.4 | 204.4 | 100.6 | 34.3 |
| PROPANE | 81.9 | 47.5 | 35.4 | 31.9 | 215.4 | 260.5 | 107.0 | 30.5 |
| ISOBUTANE | 53.9 | 42.8 | 17.1 | 20.8 | 139.4 | 193.8 | 38.8 | 25.6 |
| n-BUTANE | 50.2 | 32.5 | 26.4 | 35.2 | 113.8 | 155.6 | 54.6 | 30.3 |
| ISOPENTANE | 42.7 | 28.8 | 30.3 | 32.9 | 80.5 | 102.5 | 56.3 | 107.0 |
| n-PENTANE | 25.7 | 16.3 | 16.9 | 16.9 | 46.2 | 57.6 | 32.2 | 19.5 |
| 2,2-DIMETHYLBUTANE | 2.3 | 1.3 | 1.3 | 1.2 | 3.9 | 4.0 | 2.5 | 1.5 |
| CYCLOPENTANE | 1.7 | 1.1 | 1.4 | 1.1 | 3.0 | 3.5 | 2.6 | 11.9 |
| 2,3-DIMETHYLBUTANE | 3.8 | 2.7 | 2.8 | 2.7 | 6.6 | 7.5 | 5.7 | 3.0 |
| 2-METHYLPENTANE | 13.0 | 9.7 | 9.2 | 8.8 | 21.2 | 24.8 | 18.8 | 10.4 |
| 3-METHYLPENTANE | 9.6 | 11.8 | 6.7 | 4.9 | 12.7 | 14.0 | * | 8.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 11.7 | 16.6 | 7.7 | 6.4 | 17.5 | 19.6 | 17.7 | 14.0 |
| METHYLCYCLOPENTANE | 5.9 | 46.0 | 3.8 | 3.6 | 9.5 | 10.4 | 9.0 | 111.3 |
| 2,4-DIMETHYLPENTANE | 2.1 | 2.6 | 1.6 | 1.5 | 2.6 | 3.0 | 2.7 | 2.3 |
| CYCLOHEXANE | 4.5 | 7.5 | 1.7 | 1.7 | 7.8 | 8.3 | 5.5 | 2.5 |
| 2-METHYLHEXANE | 3.9 | 3.5 | 5.1 | 4.6 | 10.3 | 11.3 | 6.0 | 6.2 |
| 2,3-DIMETHYLPENTANE | 2.1 | 1.6 | * | * | * | * | 2.9 | * |
| 3-METHYLHEXANE | 8.2 | 7.3 | 2.9 | 2.6 | 5.9 | 6.8 | 6.5 | 3.6 |
| 2,2,4-TRIMETHYLPENTANE | 5.4 | 4.2 | 4.9 | 4.5 | 8.5 | 7.4 | 9.2 | 4.6 |
| n-HEPTANE | 5.3 | 4.3 | 3.3 | 2.5 | 7.3 | 7.1 | 7.5 | 3.3 |
| METHYLCYCLOHEXANE | 5.5 | 3.2 | 2.4 | 2.2 | 9.3 | 9.9 | 6.5 | 3.3 |
| 2,5-DIMETHYLHEXANE | 1.4 | 1.1 | 1.1 | 0.9 | 1.9 | 2.1 | 2.3 | 1.2 |
| 2,4-DIMETHYLHEXANE | 1.7 | 1.0 | 1.3 | 1.0 | 1.8 | 2.2 | 2.4 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 2.4 | 1.7 | 2.1 | 1.9 | 4.0 | 2.9 | 4.0 | 2.0 |
| 2-METHYLHEPTANE | 2.2 | 1.9 | 1.2 | 1.2 | 3.2 | 2.3 | 3.7 | 1.0 |
| 3-METHYLHEPTANE | 1.7 | 1.4 | 1.0 | 1.0 | 2.3 | 1.5 | 3.3 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.1 | 0.8 | 1.0 | 0.6 | 1.6 | 1.5 | 1.3 | 0.7 |
| n-OCTANE | 2.1 | 1.6 | 1.4 | 1.0 | 3.7 | 2.7 | 2.7 | 1.5 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | 0.8 | 0.8 | 0.4 | 1.3 | 1.4 | 2.1 | 1.5 |
| 3-METHYLOCTANE | 0.7 | 0.7 | 0.5 | * | 1.5 | 1.4 | 1.8 | 1.7 |
| n-NONANE | 40.0 | 6.7 | 1.0 | 0.5 | 2.2 | 2.2 | 2.3 | 3.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | 1.2 |
| n-DECANE | 20.3 | 7.5 | 3.8 | 1.1 | 3.6 | 3.4 | 3.5 | 5.8 |
| SUM OTHER PARAFFINS | 65.2 | 55.7 | 41.9 | 33.3 | 31.9 | 28.1 | 57.2 | 40.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 12.7 | 60.2 | 8.0 | 9.5 | 12.4 | 6.8 | 15.5 | 39.8 |
| PROPENE | 3.7 | 15.4 | 2.6 | 2.7 | 3.3 | 3.9 | 9.9 | 8.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.6 | 6.3 | 3.4 | 4.7 | 4.7 | 6.3 | 6.4 | 4.6 |
| 1,3-BUTADIENE | 0.7 | 3.9 | 0.5 | 0.6 | 0.7 | 0.7 | 1.2 | 3.1 |
| t-2-BUTENE | 2.1 | 2.3 | 1.6 | 2.4 | 4.2 | 6.5 | 3.7 | 2.4 |
| c-2-BUTENE | 1.0 | 1.4 | 1.1 | 1.8 | 2.0 | 4.0 | 2.6 | 1.8 |
| 1-PENTENE | 1.0 | * | 1.0 | 1.1 | 1.8 | 2.7 | 3.8 | 1.3 |
| 2-METHYL-1-BUTENE | 1.3 | 1.1 | 1.0 | 1.9 | 2.1 | 3.6 | 2.9 | 1.4 |
| ISOPRENE | 4.9 | 1.9 | 6.2 | 1.6 | 4.6 | 2.7 | 5.7 | 2.6 |
| t-2-PENTENE | 1.4 | 2.4 | 1.5 | 1.9 | 2.6 | 4.4 | 3.5 | 4.7 |
| c-2-PENTENE | 2.5 | 2.0 | 2.0 | 2.2 | 3.3 | 5.4 | * | 2.7 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.4 | 0.6 | 2.3 | 0.3 | * | 0.7 | 1.7 | * |
| 2-METHYL-2-PENTENE | 0.7 | 0.3 | 0.7 | 0.5 | 0.9 | 1.4 | 1.4 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 6.4 | [illegible] | [illegible] | 1.2 | 1.2 | 1.3 | [illegible] |
| a-PINENE | 12.1 | 3.7 | 3.1 | 3.3 | 5.4 | 6.4 | 5.9 | 8.1 |
| SUM OTHER OLEFINS | 55.6 | 50.1 | 46.4 | 37.4 | 22.6 | 30.9 | 36.8 | 26.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 11.4 | 13.5 | 8.6 | 7.7 | 15.7 | 14.2 | 16.6 | 10.3 |
| TOLUENE | 21.9 | 20.2 | 19.7 | 16.6 | 30.6 | 29.3 | 34.3 | 21.8 |
| ETHYLBENZENE | 3.8 | 3.0 | 3.0 | 3.0 | 4.7 | 4.6 | 5.6 | 3.3 |
| m&p-XYLENE | 14.9 | 10.8 | 11.5 | 10.9 | 16.2 | 18.0 | 21.5 | 12.2 |
| o-XYLENE | 5.8 | 5.3 | 5.6 | 5.1 | 6.3 | 7.2 | 8.0 | 5.4 |
| n-PROPYLBENZENE | 1.4 | 1.3 | 1.0 | 0.6 | 1.2 | 1.0 | 1.3 | 2.0 |
| m-ETHYLTOLUENE | 6.8 | 4.2 | 3.1 | 3.0 | 3.8 | 4.5 | 5.6 | 3.4 |
| p-ETHYLTOLUENE | 2.4 | 2.0 | 2.7 | 2.3 | 2.3 | 2.6 | 2.6 | 2.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.2 | 2.4 | 1.9 | 1.4 | 2.4 | 2.7 | 3.8 | 2.2 |
| o-ETHYLTOLUENE | 3.8 | 3.0 | 2.6 | 1.8 | 2.4 | 2.5 | 2.9 | 2.8 |
| 1,2,4-TRIMETHYLBENZENE | 5.9 | 5.1 | 5.3 | 4.9 | 6.6 | 8.1 | 12.3 | 7.3 |
| n-DECANE | * | 37.3 | 35.9 | 48.5 | 30.2 | 8.3 | 3.3 | * |
| 1,4-DIETHYLBENZENE | 1.0 | 1.5 | 4.2 | 1.1 | 2.1 | 2.3 | 2.8 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.6 | 3.1 | 2.3 | 0.9 | 1.8 | 2.5 | 3.5 | 1.9 |
| SUM OTHER AROMATICS | 502.5 | 80.4 | 73.5 | 40.2 | 31.4 | 33.4 | 38.8 | 52.7 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 5.9 | 9.8 | 6.5 | 6.7 | 7.0 | 20.3 | 11.9 | 21.4 |
| SUM UNKNOWNS | 8.5 | 23.4 | 5.5 | 4.2 | 9.4 | 29.7 | 35.3 | 10.5 |
| SUM PARAFFINS | 550.0 | 405.7 | 277.8 | 272.2 | 966.1 | 1165.0 | 580.5 | 498.8 |
| SUM OLEFINS | 107.5 | 158.7 | 83.0 | 73.6 | 72.4 | 88.2 | 102.8 | 120.0 |
| SUM AROMATICS | 588.9 | 194.0 | 181.5 | 148.7 | 158.3 | 142.1 | 163.5 | 130.1 |
| SUM HYDROCARBONS | 1278.1 | 795.4 | 557.3 | 505.6 | 1213.2 | 1445.5 | 894.1 | 783.0 |

TABLE A-26b. Hydrocarbon concentration data for LAKE CHARLES, LA

| Compound | ID Number and Sample Date<br>1926<br>85/08/05 | 2100<br>85/08/16 | 2205<br>85/08/22 | 2300<br>85/08/29 | 2338<br>85/09/03 | 2461CS0<br>85/09/12 | 2552<br>85/09/20 | 2644<br>85/09/27 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 119.2 | 53.9 | 174.8 | 55.2 | 19.7 | 184.2 | 97.7 | 25.7 |
| PROPANE | 111.2 | 89.4 | 216.6 | 49.1 | 19.6 | 156.2 | 74.0 | 21.2 |
| ISOBUTANE | 55.3 | 35.8 | 144.2 | 28.7 | 6.0 | 77.0 | 34.1 | 9.7 |
| n-BUTANE | 59.8 | 45.1 | 107.0 | 42.4 | 12.9 | 80.9 | 44.5 | 13.4 |
| ISOPENTANE | 50.1 | 41.5 | 74.5 | 36.7 | 14.6 | 57.4 | 34.2 | 12.0 |
| n-PENTANE | 28.6 | 20.5 | 43.8 | 19.1 | 7.1 | 33.4 | 20.1 | 3.7 |
| 2,2-DIMETHYLBUTANE | 2.7 | 1.5 | 3.9 | 1.5 | 0.5 | 3.2 | 1.9 | 0.4 |
| CYCLOPENTANE | 2.1 | 1.8 | 2.7 | 1.7 | 0.5 | 2.4 | 1.5 | 0.6 |
| 2,3-DIMETHYLBUTANE | 4.9 | 4.2 | 6.2 | 3.0 | 1.4 | 4.9 | 3.0 | 1.1 |
| 2-METHYLPENTANE | 15.9 | 15.6 | 21.0 | 11.0 | 4.7 | 16.4 | 10.7 | 4.1 |
| 3-METHYLPENTANE | 10.3 | 14.3 | 12.9 | 6.3 | 3.3 | 10.1 | 6.9 | 2.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 13.9 | 34.3 | 17.9 | 8.1 | 3.5 | 13.4 | 8.7 | 3.2 |
| METHYLCYCLOPENTANE | 8.4 | 11.4 | 9.4 | 4.8 | 1.9 | 7.9 | 5.1 | 1.8 |
| 2,4-DIMETHYLPENTANE | 2.2 | 2.1 | 2.6 | 1.5 | 0.7 | 2.0 | 1.3 | 0.3 |
| CYCLOHEXANE | 6.5 | 9.2 | 7.4 | 2.8 | 0.5 | 5.7 | 3.4 | 0.9 |
| 2-METHYLHEXANE | 9.8 | 9.4 | 11.3 | 8.1 | 5.3 | 9.3 | 6.4 | * |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | 5.2 |
| 3-METHYLHEXANE | 6.0 | 5.6 | 6.8 | 4.0 | 1.9 | 5.0 | 3.6 | 1.6 |
| 2,2,4-TRIMETHYLPENTANE | 5.5 | 5.5 | 5.8 | 3.7 | 2.1 | 4.2 | 2.8 | 1.4 |
| n-HEPTANE | 6.2 | 5.7 | 8.3 | 3.2 | 1.3 | 5.9 | 4.1 | 1.3 |
| METHYLCYCLOHEXANE | 8.8 | 5.7 | 9.6 | 3.8 | 1.1 | 7.6 | 4.9 | 1.4 |
| 2,5-DIMETHYLHEXANE | 1.8 | 1.8 | 2.0 | 1.1 | 0.3 | 1.4 | 1.1 | 0.0 |
| 2,4-DIMETHYLHEXANE | 1.6 | 1.6 | 1.8 | 0.9 | 0.4 | 1.3 | 0.9 | 0.4 |
| 2,3,4-TRIMETHYLPENTANE | 3.0 | 3.2 | 3.0 | 2.2 | 1.3 | 2.3 | 1.5 | 0.7 |
| 2-METHYLHEPTANE | 3.1 | 1.5 | 2.3 | 1.5 | 0.3 | 2.4 | 1.9 | 0.7 |
| 3-METHYLHEPTANE | 2.6 | 2.4 | 2.7 | 1.7 | 0.8 | 1.9 | 1.4 | 0.6 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.3 | 1.3 | 0.7 | 0.4 | 1.1 | 0.6 | 0.4 |
| n-OCTANE | 2.7 | 2.8 | 2.9 | 2.2 | 0.6 | 2.2 | 2.0 | 0.6 |
| 2,4-DIMETHYLHEPTANE | * | * | 2.4 | 1.8 | 1.7 | 0.4 | 1.2 | 0.9 |
| 4-METHYLOCTANE | 1.5 | 1.4 | 1.0 | 0.8 | 0.4 | 0.8 | 1.0 | 0.2 |
| 3-METHYLOCTANE | 1.1 | 1.5 | 0.8 | 0.7 | 0.4 | 1.0 | 0.7 | 0.1 |
| n-NONANE | 1.6 | 3.0 | 1.5 | 0.9 | 0.3 | 1.5 | 0.9 | 0.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.9 | 2.9 | 1.0 | 1.6 | 0.7 | 2.3 | 2.6 | 1.1 |
| SUM OTHER PARAFFINS | 27.8 | 26.0 | 21.3 | 17.9 | 10.5 | 20.3 | 16.5 | 3.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 14.4 | 31.6 | 14.5 | 13.1 | 7.0 | 14.6 | 6.1 | 5.4 |
| PROPENE | 3.6 | 42.3 | 3.8 | 3.7 | 2.2 | 3.0 | 2.8 | 1.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.9 | 6.7 | 3.9 | 3.7 | 2.0 | 2.9 | 2.8 | 1.5 |
| 1,3-BUTADIENE | 0.3 | 3.3 | 0.8 | 0.6 | 0.3 | 0.2 | 0.5 | * |
| t-2-BUTENE | 2.6 | 3.6 | * | 2.2 | 0.9 | * | 1.6 | 0.4 |
| c-2-BUTENE | 1.5 | 2.8 | 1.5 | 1.5 | 0.8 | 1.2 | 0.8 | 0.2 |
| 1-PENTENE | 1.3 | 1.5 | 1.6 | 1.1 | 0.6 | 1.3 | * | 0.0 |
| 2-METHYL-1-BUTENE | 1.9 | 1.6 | 2.1 | 1.5 | 0.8 | 1.5 | 1.0 | 0.1 |
| ISOPRENE | 2.6 | 1.4 | 3.9 | 4.6 | * | 2.0 | * | * |
| t-2-PENTENE | 1.9 | 1.9 | 2.2 | 1.8 | 1.0 | 1.9 | 1.5 | 0.0 |
| c-2-PENTENE | 2.2 | 2.1 | 2.3 | * | 1.2 | 2.3 | 1.4 | 0.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.2 | 2.1 | 0.4 | * | 0.1 | 0.3 | * | 0.0 |
| 2-METHYL-2-PENTENE | 0.6 | 0.6 | 0.8 | 0.6 | 0.0 | 0.7 | 0.4 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.2 | 0.8 | 1.1 | 0.6 | 0.5 | 0.7 | 0.6 | * |
| a-PINENE | 1.6 | 0.9 | 1.8 | 4.4 | 0.6 | 4.4 | 1.8 | 0.7 |
| SUM OTHER OLEFINS | 19.7 | 14.8 | 8.9 | 18.2 | 11.6 | 7.9 | 6.1 | 5.6 |
| AROMATICS | | | | | | | | |
| BENZENE | 18.2 | 12.4 | 17.0 | 8.8 | 5.0 | 12.9 | 8.5 | 3.7 |
| TOLUENE | 32.3 | 28.2 | 34.0 | 19.7 | 10.3 | 26.8 | 21.4 | 9.3 |
| ETHYLBENZENE | 4.8 | 4.0 | 5.3 | 3.5 | 1.7 | 4.6 | 4.0 | 1.7 |
| m&p-XYLENE | 17.6 | 14.3 | 18.4 | 12.3 | 7.0 | 16.0 | 13.2 | 6.2 |
| o-XYLENE | 7.4 | 5.6 | 7.5 | 5.9 | 3.7 | 5.9 | 5.4 | 2.6 |
| n-PROPYLBENZENE | 0.9 | 0.7 | * | 0.7 | 0.4 | 1.0 | 0.6 | 0.4 |
| m-ETHYLTOLUENE | 4.4 | 2.5 | 4.0 | 3.5 | 1.8 | 4.2 | 3.2 | 1.7 |
| p-ETHYLTOLUENE | 2.0 | 1.1 | 1.1 | 1.5 | 0.8 | 1.9 | 1.5 | 0.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.7 | 1.7 | 2.3 | 1.8 | 0.8 | 2.3 | 1.8 | 0.8 |
| o-ETHYLTOLUENE | 2.1 | 2.0 | 2.3 | 1.7 | 1.3 | 2.0 | 1.4 | 0.8 |
| 1,2,4-TRIMETHYLBENZENE | 11.1 | 2.5 | 12.6 | 7.2 | 6.0 | 7.6 | 12.8 | 4.0 |
| n-DECANE | 1.5 | 1.6 | 1.7 | 1.5 | 0.5 | 1.2 | 1.4 | 0.4 |
| 1,4-DIETHYLBENZENE | 1.6 | 1.4 | 1.5 | 1.2 | 0.7 | 1.1 | 1.1 | 0.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.1 | 1.8 | * | 0.8 | 0.5 | * | 0.8 | * |
| SUM OTHER AROMATICS | 18.7 | 33.4 | 17.3 | 11.1 | 5.7 | 14.3 | 15.1 | 2.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 9.4 | 6.3 | 7.5 | 4.2 | 4.3 | 6.5 | 4.8 | 4.1 |
| SUM UNKNOWNS | 7.1 | 3.5 | 5.4 | 4.4 | 2.1 | 13.3 | 4.8 | 1.2 |
| SUM PARAFFINS | 578.5 | 462.9 | 931.8 | 330.0 | 128.1 | 727.4 | 402.6 | 123.3 |
| SUM OLEFINS | 59.2 | 118.6 | 50.2 | 58.1 | 30.2 | 45.5 | 27.9 | 16.2 |
| SUM AROMATICS | 127.0 | 113.8 | 125.6 | 81.8 | 46.8 | 102.2 | 92.7 | 35.7 |
| SUM HYDROCARBONS | 781.4 | 705.4 | 1121.2 | 478.6 | 211.7 | 895.1 | 533.2 | 180.7 |

## TABLE A-27a. Hydrocarbon concentration data for MIAMI, FL

| Compound | ID Number and Sample Date<br>1985<br>84/08/28 | <br>2175<br>84/09/10 | <br>2323<br>84/09/19 |
|---|---|---|---|
| **PARAFFINS** | | | |
| ETHANE | 8.1 | 8.3 | 6.2 |
| PROPANE | 12.5 | 10.1 | 10.2 |
| ISOBUTANE | 7.0 | 15.6 | 8.7 |
| n-BUTANE | 31.0 | 56.1 | 27.3 |
| ISOPENTANE | 51.2 | 77.4 | 40.9 |
| n-PENTANE | 23.6 | 32.3 | 23.4 |
| 2,2-DIMETHYLBUTANE | 2.1 | 2.9 | 1.7 |
| CYCLOPENTANE | 2.2 | 3.1 | 1.8 |
| 2,3-DIMETHYLBUTANE | 5.0 | 7.3 | 4.3 |
| 2-METHYLPENTANE | 23.6 | 29.4 | 17.9 |
| 3-METHYLPENTANE | 15.1 | 19.1 | 14.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 15.7 | 18.8 | 12.7 |
| METHYLCYCLOPENTANE | 8.3 | 10.3 | 6.1 |
| 2,4-DIMETHYLPENTANE | 2.9 | 4.2 | 2.3 |
| CYCLOHEXANE | 1.8 | 2.1 | 1.3 |
| 2-METHYLHEXANE | 13.3 | 10.5 | 8.9 |
| 2,3-DIMETHYLPENTANE | * | 5.9 | * |
| 3-METHYLHEXANE | 10.6 | 11.4 | 6.8 |
| 2,2,4-TRIMETHYLPENTANE | 9.1 | 14.6 | 6.3 |
| n-HEPTANE | 6.6 | 8.2 | 4.4 |
| METHYLCYCLOHEXANE | 3.6 | 4.4 | 2.2 |
| 2,5-DIMETHYLHEXANE | 2.5 | 3.1 | 1.5 |
| 2,4-DIMETHYLHEXANE | 2.9 | 3.6 | 1.8 |
| 2,3,4-TRIMETHYLPENTANE | 2.5 | 4.6 | 1.8 |
| 2-METHYLHEPTANE | 3.7 | 4.2 | 2.4 |
| 3-METHYLHEPTANE | 4.2 | 4.7 | 2.8 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.8 | 0.6 |
| n-OCTANE | 2.8 | 3.7 | 1.6 |
| 2,4-DIMETHYLHEPTANE | * | 0.3 | 0.1 |
| 4-METHYLOCTANE | 2.7 | 3.5 | 1.3 |
| 3-METHYLOCTANE | 1.3 | 1.8 | 0.9 |
| n-NONANE | 1.9 | 2.9 | 1.5 |
| 4-METHYLNONANE | * | * | * |
| n-DECANE | 3.3 | 4.7 | 3.2 |
| SUM OTHER PARAFFINS | 29.9 | 65.0 | 22.8 |

|  |  |  |  |
|---|---|---|---|
| OLEFINS |  |  |  |
| ETHYLENE | 19.0 | 29.9 | 12.9 |
| PROPENE | 5.5 | * | 4.0 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.4 | 7.8 | 3.6 |
| 1,3-BUTADIENE | 0.8 | 1.2 | 0.4 |
| t-2-BUTENE | 1.6 | 2.8 | 1.4 |
| c-2-BUTENE | 1.5 | 2.4 | 1.2 |
| 1-PENTENE | 2.0 | 2.8 | 1.5 |
| 2-METHYL-1-BUTENE | 3.0 | 3.9 | 2.6 |
| ISOPRENE | 0.7 | 2.0 | 0.5 |
| t-2-PENTENE | 3.8 | 4.6 | 2.7 |
| c-2-PENTENE | 4.6 | 5.6 | 1.8 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.7 | 1.0 | 0.8 |
| 2-METHYL-2-PENTENE | 1.7 | 2.0 | 1.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.6 | 1.0 | 1.0 |
| a-PINENE | * | * | * |
| SUM OTHER OLEFINS | 43.6 | 55.1 | 32.3 |
| AROMATICS |  |  |  |
| BENZENE | 12.8 | 17.3 | 7.5 |
| TOLUENE | 38.6 | 58.9 | 33.6 |
| ETHYLBENZENE | 5.4 | 9.6 | 5.0 |
| m&p-XYLENE | 17.8 | 31.6 | 16.6 |
| o-XYLENE | 6.9 | 11.7 | 5.7 |
| n-PROPYLBENZENE | 2.0 | 3.2 | 1.6 |
| m-ETHYLTOLUENE | 7.1 | 11.4 | 5.5 |
| p-ETHYLTOLUENE | 3.5 | 5.9 | 3.0 |
| 1,3,5-TRIMETHYLBENZENE | 3.7 | 6.3 | 3.2 |
| o-ETHYLTOLUENE | 3.4 | 5.4 | 2.5 |
| 1,2,4-TRIMETHYLBENZENE | 11.0 | 19.1 | 8.7 |
| n-DECANE | 2.7 | 6.9 | 4.5 |
| 1,4-DIETHYLBENZENE | 3.3 | 5.7 | 2.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.2 | 5.1 | 2.0 |
| SUM OTHER AROMATICS | 48.3 | 66.0 | 47.1 |
| SUMMARY |  |  |  |
| ACETYLENE | 23.0 | 25.6 | 10.7 |
| SUM UNKNOWNS | 11.2 | 3.6 | 1.2 |
| SUM PARAFFINS | 313.5 | 457.4 | 251.3 |
| SUM OLEFINS | 94.1 | 122.7 | 68.3 |
| SUM AROMATICS | 169.2 | 264.6 | 149.6 |
| SUM HYDROCARBONS | 611.2 | 874.1 | 481.3 |

TABLE A-28a. Hydrocarbon concentration data for MANHATTAN, NY

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1227<br>86/06/17 | 1794<br>86/07/18 | 1805<br>86/07/21 | 1975<br>86/07/29 | 2161<br>86/08/08 | 2272<br>86/08/14 | 2347<br>86/08/19 | 2369<br>86/08/20 |
| PARAFFINS | | | | | | | | |
| ETHANE | 15.0 | 27.2 | 22.8 | 28.1 | 23.9 | 15.5 | 12.8 | 13.0 |
| PROPANE | 8.8 | 23.5 | 16.1 | 22.4 | 18.9 | 11.0 | 8.6 | 16.9 |
| ISOBUTANE | 13.0 | 47.5 | 16.2 | 37.2 | 22.3 | 15.8 | 13.0 | 21.2 |
| n-BUTANE | 23.4 | 69.4 | 29.6 | 63.8 | 36.3 | 28.4 | 21.0 | 36.4 |
| ISOPENTANE | 28.6 | 82.4 | 36.2 | 78.0 | 42.6 | 38.3 | 27.6 | 43.4 |
| n-PENTANE | 12.0 | 33.2 | 12.8 | 29.0 | 18.5 | 13.5 | 9.7 | 13.6 |
| 2,2-DIMETHYLBUTANE | 0.7 | 1.9 | 0.8 | 2.3 | 1.2 | 1.1 | 0.9 | 1.2 |
| CYCLOPENTANE | 0.9 | 2.7 | 1.2 | 2.6 | 1.4 | 1.0 | 0.8 | 1.1 |
| 2,3-DIMETHYLBUTANE | 1.9 | 4.7 | 2.5 | 5.4 | 2.9 | 2.6 | 2.1 | 2.6 |
| 2-METHYLPENTANE | 7.5 | 17.6 | 9.4 | 18.9 | 10.4 | 9.1 | 7.8 | 9.4 |
| 3-METHYLPENTANE | 5.5 | 11.9 | 7.0 | 15.3 | 6.7 | 6.7 | 5.7 | 6.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.9 | 10.1 | 6.6 | 11.2 | 6.1 | 5.2 | 5.3 | 8.2 |
| METHYLCYCLOPENTANE | 2.8 | 6.4 | 4.1 | 7.4 | 3.9 | 3.5 | 3.0 | 3.7 |
| 2,4-DIMETHYLPENTANE | 1.2 | 2.4 | 1.7 | 3.0 | 1.5 | 1.5 | 1.2 | 1.4 |
| CYCLOHEXANE | 1.4 | 1.9 | 0.9 | 1.4 | 0.8 | 0.6 | 0.6 | 7.1 |
| 2-METHYLHEXANE | 2.3 | 11.4 | 5.9 | 10.1 | 5.5 | 4.9 | 4.2 | 2.9 |
| 2,3-DIMETHYLPENTANE | 1.5 | * | * | * | * | * | * | 2.9 |
| 3-METHYLHEXANE | 2.7 | 6.3 | 3.5 | 6.4 | 3.8 | 3.3 | 2.7 | 3.3 |
| 2,2,4-TRIMETHYLPENTANE | 4.6 | 7.3 | 5.9 | 10.6 | 5.6 | 5.7 | 4.5 | 5.0 |
| n-HEPTANE | 2.0 | 5.5 | 2.3 | 5.8 | 2.7 | 3.4 | 1.6 | 3.2 |
| METHYLCYCLOHEXANE | 1.5 | 3.1 | 1.9 | 3.5 | 2.0 | 2.0 | 1.4 | 1.7 |
| 2,5-DIMETHYLHEXANE | 0.9 | 1.6 | 0.4 | 2.3 | 0.4 | 1.2 | 1.1 | 1.1 |
| 2,4-DIMETHYLHEXANE | 0.9 | 1.5 | 1.1 | 2.3 | 1.3 | 1.1 | 0.9 | 1.0 |
| 2,3,4-TRIMETHYLPENTANE | 1.9 | 2.8 | 2.1 | 3.7 | 2.2 | 2.1 | 1.8 | 1.8 |
| 2-METHYLHEPTANE | 0.8 | 3.3 | 0.7 | 3.0 | 2.4 | 0.8 | 0.7 | 0.8 |
| 3-METHYLHEPTANE | 1.2 | 2.4 | 1.4 | 2.9 | 1.5 | 1.7 | 1.4 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.8 | 0.8 | 1.6 | 0.8 | 0.7 | 0.7 | 0.7 |
| n-OCTANE | * | * | 14.7 | * | 3.6 | * | * | * |
| 2,4-DIMETHYLHEPTANE | 0.9 | 0.8 | 0.4 | 0.9 | 0.6 | 0.7 | 0.6 | 0.7 |
| 4-METHYLOCTANE | 1.0 | 1.7 | 1.8 | 2.2 | 1.3 | 2.0 | 2.1 | 2.1 |
| 3-METHYLOCTANE | 0.6 | 1.9 | 1.3 | 2.1 | 1.3 | 1.3 | 1.9 | 1.9 |
| n-NONANE | * | 3.1 | 1.9 | 4.0 | 2.1 | 2.3 | 6.2 | 5.7 |
| 4-METHYLNONANE | * | * | * | 1.5 | * | * | 2.0 | 2.1 |
| n-DECANE | 3.5 | 6.2 | 5.4 | 11.7 | 5.1 | 5.2 | 9.8 | 12.3 |
| SUM OTHER PARAFFINS | 30.1 | 38.7 | 19.4 | 58.6 | 19.9 | 26.4 | 47.3 | 42.5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 16.5 | 26.8 | 21.1 | 26.6 | 17.9 | 15.9 | 15.8 | 13.6 |
| PROPENE | 5.1 | 10.6 | 7.1 | 7.3 | 6.4 | 5.0 | 4.8 | 4.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 6.5 | 8.0 | 6.5 | 10.0 | 7.8 | 5.7 | 5.0 | 6.7 |
| 1,3-BUTADIENE | 1.0 | 0.5 | 0.3 | 0.4 | 0.2 | 0.4 | 0.2 | 0.7 |
| t-2-BUTENE | 2.2 | 7.9 | 2.5 | 3.6 | 2.8 | 2.0 | 1.5 | 3.4 |
| c-2-BUTENE | 1.8 | 7.0 | 2.0 | 4.1 | 2.6 | 1.8 | 1.6 | 2.7 |
| 1-PENTENE | 1.2 | 3.4 | 1.4 | 3.2 | 0.8 | 1.4 | 1.0 | 1.7 |
| 2-METHYL-1-BUTENE | 1.9 | 5.2 | 2.2 | 1.2 | 0.7 | 2.0 | 1.6 | 2.6 |
| ISOPRENE | 2.6 | 0.8 | 1.7 | 1.3 | 0.4 | 1.8 | 1.3 | 1.5 |
| t-2-PENTENE | 1.8 | 4.6 | 2.1 | 4.3 | 0.9 | 2.1 | 1.8 | 2.6 |
| c-2-PENTENE | 3.2 | 4.6 | 3.7 | 5.7 | 3.1 | 2.9 | 2.9 | 5.0 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.3 | 1.1 | * | 1.7 | * | 0.3 | 0.4 | 1.1 |
| 2-METHYL-2-PENTENE | 0.6 | 0.9 | 0.8 | 1.4 | 1.1 | 0.8 | 0.8 | 0.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 2.1 | 3.5 | 2.6 | 1.2 | 2.1 | 2.5 | 4.6 |
| a-PINENE | * | 2.1 | 0.8 | 1.0 | 0.8 | * | * | * |
| SUM OTHER OLEFINS | 10.2 | 19.5 | 14.0 | 19.4 | 10.8 | 9.8 | 8.7 | 14.6 |
| AROMATICS | | | | | | | | |
| BENZENE | 9.3 | 13.8 | 11.7 | 17.7 | 10.4 | 9.2 | 9.1 | 10.6 |
| TOLUENE | 25.0 | 49.3 | 37.1 | 72.1 | 32.9 | 32.3 | 30.5 | 36.8 |
| ETHYLBENZENE | 4.1 | 6.6 | 5.5 | 9.1 | 4.9 | 5.2 | 4.9 | 5.7 |
| m&p-XYLENE | 13.2 | 20.5 | 17.7 | 28.2 | 15.9 | 17.2 | 16.8 | 18.5 |
| o-XYLENE | 6.0 | 8.8 | 6.7 | 11.0 | 6.7 | 6.3 | 7.3 | 6.9 |
| n-PROPYLBENZENE | 0.8 | 1.3 | 1.3 | 2.3 | 1.3 | 1.2 | 1.3 | 1.5 |
| m-ETHYLTOLUENE | 3.8 | 5.5 | 4.6 | 7.4 | 4.5 | 4.4 | 4.7 | 4.6 |
| p-ETHYLTOLUENE | 2.0 | 3.1 | 2.6 | 4.4 | 2.5 | 2.5 | 3.4 | 3.3 |
| 1,3,5-TRIMETHYLBENZENE | 2.7 | 3.6 | 3.1 | 3.7 | 3.2 | 1.3 | 2.9 | 2.7 |
| o-ETHYLTOLUENE | 1.6 | 2.7 | 2.5 | 4.1 | 2.2 | 2.4 | 3.5 | 3.5 |
| 1,2,4-TRIMETHYLBENZENE | 14.5 | 13.9 | 11.5 | 19.9 | 13.2 | 11.2 | 11.9 | 12.4 |
| n-DECANE | * | 2.6 | 1.5 | 3.6 | 2.2 | 1.5 | 3.0 | 2.1 |
| 1,4-DIETHYLBENZENE | * | 2.5 | 1.6 | 2.8 | 2.5 | 1.6 | 2.5 | 1.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.8 | 3.0 | 2.8 | 5.6 | 2.9 | 2.8 | 4.0 | 5.1 |
| SUM OTHER AROMATICS | 24.0 | 34.8 | 31.7 | 39.9 | 39.1 | 26.7 | 34.5 | 32.6 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 10.8 | 20.0 | 17.3 | 22.4 | 14.9 | 13.6 | 13.4 | 10.9 |
| SUM UNKNOWNS | 3.6 | 1.5 | 4.5 | 1.6 | 4.7 | 1.2 | 0.5 | 6.1 |
| SUM PARAFFINS | 185.7 | 442.4 | 240.4 | 460.8 | 261.0 | 219.9 | 212.3 | 280.6 |
| SUM OLEFINS | 56.7 | 105.4 | 70.4 | 94.4 | 58.0 | 54.6 | 50.4 | 66.7 |
| SUM AROMATICS | 109.3 | 172.7 | 142.9 | 232.5 | 145.0 | 126.5 | 141.2 | 148.5 |
| SUM HYDROCARBONS | 366.2 | 742.3 | 475.6 | 811.8 | 483.9 | 416.0 | 417.9 | 513.0 |

TABLE A-28b. Hydrocarbon concentration data for MANHATTAN, NY

|  | ID Number and Sample Date |  |  |  |
|---|---|---|---|---|
| Compound | 2482<br>86/08/26 | 2632<br>86/09/04 | 2672<br>86/09/08 | 2826<br>86/09/17 |
| PARAFFINS |  |  |  |  |
| ETHANE | 50.9 | 9.3 | 12.2 | 18.8 |
| PROPANE | 38.0 | 7.0 | 6.5 | 10.1 |
| ISOBUTANE | 56.7 | 9.5 | 7.6 | 12.1 |
| n-BUTANE | 108.1 | 17.3 | 15.1 | 20.4 |
| ISOPENTANE | 119.4 | 20.1 | 18.6 | 25.9 |
| n-PENTANE | 42.4 | 7.5 | 5.0 | 5.3 |
| 2,2-DIMETHYLBUTANE | 4.3 | 0.5 | 0.3 | 0.7 |
| CYCLOPENTANE | 4.0 | 0.6 | 0.6 | 0.8 |
| 2,3-DIMETHYLBUTANE | 9.2 | 1.5 | 1.3 | 2.0 |
| 2-METHYLPENTANE | 37.9 | 5.1 | 4.6 | 6.7 |
| 3-METHYLPENTANE | 31.4 | 4.2 | 2.9 | 5.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 20.9 | 3.0 | 2.5 | 4.5 |
| METHYLCYCLOPENTANE | 12.9 | 2.0 | 1.8 | 2.8 |
| 2,4-DIMETHYLPENTANE | 5.4 | 0.9 | 0.9 | 1.3 |
| CYCLOHEXANE | 3.4 | 0.3 | 0.2 | 0.5 |
| 2-METHYLHEXANE | 13.2 | 3.2 | 3.2 | 2.8 |
| 2,3-DIMETHYLPENTANE | 8.9 | * | * | 2.0 |
| 3-METHYLHEXANE | 13.5 | 2.4 | 1.8 | 2.8 |
| 2,2,4-TRIMETHYLPENTANE | 18.5 | 3.6 | 3.3 | 5.2 |
| n-HEPTANE | 10.2 | 1.8 | 1.7 | 2.2 |
| METHYLCYCLOHEXANE | 6.8 | 1.2 | 1.0 | 1.6 |
| 2,5-DIMETHYLHEXANE | 3.8 | 0.5 | 0.3 | 0.4 |
| 2,4-DIMETHYLHEXANE | 4.1 | 0.7 | 0.6 | 0.7 |
| 2,3,4-TRIMETHYLPENTANE | 7.5 | 1.4 | 1.2 | 2.0 |
| 2-METHYLHEPTANE | 6.0 | 0.5 | 0.9 | 1.7 |
| 3-METHYLHEPTANE | 6.3 | 0.8 | 0.8 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | 2.8 | 0.5 | 1.0 | 1.3 |
| n-OCTANE | * | 3.8 | 2.7 | 16.0 |
| 2,4-DIMETHYLHEPTANE | 2.2 | 1.3 | 0.9 | 0.6 |
| 4-METHYLOCTANE | 5.1 | 1.9 | 1.5 | 1.6 |
| 3-METHYLOCTANE | 3.9 | 1.3 | 0.9 | 1.4 |
| n-NONANE | 8.0 | 4.1 | 2.2 | 4.9 |
| 4-METHYLNONANE | 3.0 | 2.0 | * | * |
| n-DECANE | 17.9 | 9.6 | 6.1 | 10.5 |
| SUM OTHER PARAFFINS | 108.5 | 22.2 | 13.4 | 32.6 |

| | | | | |
|---|---|---|---|---|
| OLEFINS | | | | |
| ETHYLENE | 49.8 | 9.7 | 9.7 | 23.8 |
| PROPENE | 19.5 | 3.3 | 2.9 | 5.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 20.5 | 3.9 | 3.3 | 5.7 |
| 1,3-BUTADIENE | 1.9 | 0.4 | 0.1 | 0.5 |
| t-2-BUTENE | 9.3 | 1.4 | 1.1 | 1.9 |
| c-2-BUTENE | 8.9 | 1.1 | 0.9 | 1.6 |
| 1-PENTENE | 5.5 | 0.8 | 0.5 | 0.5 |
| 2-METHYL-1-BUTENE | 8.5 | 1.1 | 0.8 | 0.6 |
| ISOPRENE | 2.3 | * | * | 0.3 |
| t-2-PENTENE | 9.2 | 5.2 | 0.6 | 0.5 |
| c-2-PENTENE | 13.7 | 2.4 | * | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 3.8 | 0.2 | 0.2 | 0.3 |
| 2-METHYL-2-PENTENE | 3.6 | 0.4 | 0.4 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 7.7 | 2.4 | 0.7 | 1.8 |
| a-PINENE | 2.0 | 0.3 | * | * |
| SUM OTHER OLEFINS | 57.5 | 5.8 | 6.2 | 12.9 |
| AROMATICS | | | | |
| BENZENE | 31.7 | 5.9 | 5.3 | 9.1 |
| TOLUENE | 131.9 | 22.3 | 17.0 | 30.8 |
| ETHYLBENZENE | 18.1 | 4.2 | 2.9 | 4.3 |
| m&p-XYLENE | 58.0 | 14.3 | 10.1 | 15.6 |
| o-XYLENE | 21.5 | 4.5 | 3.3 | 4.8 |
| n-PROPYLBENZENE | 5.7 | 1.1 | 1.1 | 1.6 |
| m-ETHYLTOLUENE | 16.5 | 3.6 | 3.2 | 4.9 |
| p-ETHYLTOLUENE | 9.5 | 2.8 | 2.1 | 3.6 |
| 1,3,5-TRIMETHYLBENZENE | 8.6 | 2.2 | 2.9 | 4.7 |
| o-ETHYLTOLUENE | 8.8 | 2.9 | 2.0 | 3.2 |
| 1,2,4-TRIMETHYLBENZENE | 31.8 | 8.6 | 9.9 | 11.8 |
| n-DECANE | 6.5 | 2.4 | 1.5 | 2.6 |
| 1,4-DIETHYLBENZENE | 5.9 | 1.3 | 1.8 | 2.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 9.0 | 5.9 | 3.2 | 6.5 |
| SUM OTHER AROMATICS | 72.9 | 34.9 | 25.7 | 24.1 |
| SUMMARY | | | | |
| ACETYLENE | 48.0 | 8.8 | 7.9 | 8.2 |
| SUM UNKNOWNS | 6.4 | 3.2 | 1.6 | 7.8 |
| SUM PARAFFINS | 796.4 | 152.9 | 124.8 | 210.0 |
| SUM OLEFINS | 224.3 | 39.0 | 28.0 | 57.0 |
| SUM AROMATICS | 437.1 | 117.5 | 92.6 | 130.8 |
| SUM HYDROCARBONS | 1512.3 | 321.6 | 255.5 | 414.0 |

TABLE A-29a. Hydrocarbon concentration data for MEMPHIS, TN

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1351<br>84/07/20 | 1429<br>84/07/25 | 1603<br>84/08/06 | 1674<br>84/08/09 | 1759<br>84/08/15 | 2144<br>84/09/07 | 2200<br>84/09/11 | 2364<br>84/09/21 |
| PARAFFINS | | | | | | | | |
| ETHANE | 43.3 | 43.7 | 27.2 | 17.6 | 25.3 | 18.9 | 14.4 | 25.7 |
| PROPANE | 25.2 | 23.3 | 23.2 | 18.5 | 26.6 | 19.7 | 10.9 | 21.2 |
| ISOBUTANE | 25.9 | 27.0 | 45.9 | 22.2 | 96.3 | 35.9 | 11.1 | 31.3 |
| n-BUTANE | 66.6 | 77.1 | 110.9 | 43.8 | 147.9 | 76.7 | 27.5 | 94.5 |
| ISOPENTANE | 89.5 | 104.0 | 121.0 | 52.4 | 235.1 | 91.1 | 43.1 | 106.6 |
| n-PENTANE | 44.8 | 50.7 | 64.6 | 25.8 | 622.6 | 41.5 | 21.9 | 50.9 |
| 2,2-DIMETHYLBUTANE | 3.8 | 4.1 | 5.9 | 2.1 | 6.8 | 3.6 | 1.9 | 4.9 |
| CYCLOPENTANE | 4.3 | 4.5 | 5.1 | 2.1 | 25.1 | 3.9 | 2.1 | 4.7 |
| 2,3-DIMETHYLBUTANE | 10.5 | 10.9 | 16.5 | 5.1 | 30.9 | 9.1 | 4.8 | 10.9 |
| 2-METHYLPENTANE | 42.4 | 40.6 | 56.3 | 20.1 | 87.8 | 35.4 | 20.0 | 43.7 |
| 3-METHYLPENTANE | 30.3 | 29.6 | 48.0 | 15.3 | 95.8 | 27.2 | 13.0 | 30.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 44.2 | 34.1 | 37.9 | 14.6 | 80.0 | 20.6 | 13.0 | 32.6 |
| METHYLCYCLOPENTANE | 22.8 | 21.7 | 23.8 | 8.8 | 71.5 | 15.3 | 8.9 | 21.0 |
| 2,4-DIMETHYLPENTANE | 7.7 | 8.8 | 11.8 | 3.4 | 15.2 | 6.0 | 3.2 | 7.3 |
| CYCLOHEXANE | 7.1 | 7.9 | 7.4 | 2.4 | 64.3 | 4.5 | 2.3 | 6.3 |
| 2-METHYLHEXANE | 30.3 | 20.2 | 20.6 | 7.9 | 111.6 | 13.9 | 7.9 | 19.2 |
| 2,3-DIMETHYLPENTANE | * | 11.7 | 11.2 | 4.0 | * | 8.8 | 4.4 | 11.2 |
| 3-METHYLHEXANE | 21.3 | 20.4 | 22.7 | 10.6 | 103.5 | 14.3 | 8.5 | 19.4 |
| 2,2,4-TRIMETHYLPENTANE | 22.0 | 26.9 | 26.2 | 10.8 | 30.2 | 23.3 | 12.6 | 25.1 |
| n-HEPTANE | 16.5 | 17.8 | 27.6 | 7.9 | 233.1 | 11.8 | 7.7 | 17.1 |
| METHYLCYCLOHEXANE | 10.7 | 11.9 | 24.9 | 5.0 | 184.4 | 9.3 | 5.3 | 15.4 |
| 2,5-DIMETHYLHEXANE | 4.7 | 6.2 | 7.1 | 2.4 | 17.5 | 4.9 | 2.7 | 5.7 |
| 2,4-DIMETHYLHEXANE | 5.3 | 6.9 | 7.0 | 2.9 | 22.4 | 5.3 | 2.9 | 6.0 |
| 2,3,4-TRIMETHYLPENTANE | 7.5 | 8.5 | 9.3 | 3.7 | 14.9 | 7.9 | 4.7 | 9.9 |
| 2-METHYLHEPTANE | 7.0 | 7.7 | 9.8 | 3.7 | 21.1 | 7.3 | 3.6 | 9.5 |
| 3-METHYLHEPTANE | 7.1 | 8.2 | 9.7 | 3.6 | * | 7.3 | 3.6 | 9.7 |
| 2,2,5-TRIMETHYLHEXANE | 3.2 | 3.1 | 3.6 | 1.2 | 10.1 | 3.2 | 1.6 | 3.5 |
| n-OCTANE | 6.0 | 7.0 | 8.2 | 2.8 | 30.5 | 8.0 | 3.0 | 8.1 |
| 2,4-DIMETHYLHEPTANE | * | 0.7 | 0.7 | * | 9.2 | 0.5 | * | 0.6 |
| 4-METHYLOCTANE | 6.7 | 5.2 | 6.1 | 2.2 | 26.1 | 7.2 | 2.2 | 8.1 |
| 3-METHYLOCTANE | 4.8 | 3.0 | 3.0 | 1.5 | 9.2 | 3.6 | 1.4 | 4.1 |
| n-NONANE | 4.4 | * | 8.0 | 2.3 | 32.9 | 5.4 | 1.7 | 7.5 |
| 4-METHYLNONANE | * | * | * | * | 7.8 | * | * | * |
| n-DECANE | 7.5 | 7.2 | 5.6 | 2.5 | 92.2 | 5.9 | 2.2 | 5.3 |
| SUM OTHER PARAFFINS | 108.9 | 73.3 | 112.4 | 46.5 | 1346.2 | 87.1 | 37.8 | 115.3 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 58.8 | 64.3 | 69.8 | 31.8 | 60.0 | 51.8 | 36.1 | 80.6 |
| PROPENE | 22.1 | 22.4 | 26.2 | 11.4 | 22.7 | 18.4 | 12.3 | 27.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 21.0 | 19.8 | 23.8 | 10.8 | 26.8 | 24.7 | 10.4 | 23.8 |
| 1,3-BUTADIENE | 7.2 | 6.7 | 7.6 | 2.7 | 7.1 | 4.8 | 3.5 | 7.8 |
| t-2-BUTENE | 9.1 | 11.0 | 15.2 | 6.3 | 10.9 | 15.9 | 5.5 | 13.7 |
| c-2-BUTENE | 6.6 | 8.3 | 11.3 | 4.7 | 7.5 | 12.7 | 3.9 | 10.5 |
| 1-PENTENE | 4.3 | 7.7 | 5.7 | 2.7 | 4.8 | 6.1 | 2.7 | 5.9 |
| 2-METHYL-1-BUTENE | 7.4 | 8.8 | 10.2 | 4.2 | 7.9 | 9.3 | 3.9 | 9.3 |
| ISOPRENE | 4.7 | 6.3 | 4.3 | 4.9 | * | 3.9 | 3.1 | 4.7 |
| t-2-PENTENE | 9.0 | 9.3 | 12.6 | 5.2 | 5.0 | 11.4 | 4.8 | 14.3 |
| c-2-PENTENE | 10.3 | 7.1 | 0.3 | 7.0 | 11.0 | 13.7 | 6.1 | 13.7 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 2.1 | 2.4 | 3.2 | 3.0 | 11.8 | 4.8 | 1.1 | 2.7 |
| 2-METHYL-2-PENTENE | 3.6 | 5.4 | 5.6 | 3.2 | 5.3 | 4.4 | 2.4 | 5.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.8 | 3.1 | 7.9 | 0.9 | 86.6 | 1.7 | 0.8 | 2.0 |
| a-PINENE | 1.2 | 1.4 | 0.9 | 0.8 | 12.8 | * | 1.4 | * |
| SUM OTHER OLEFINS | 101.2 | 95.8 | 96.3 | 50.5 | 394.1 | 74.2 | 44.3 | 98.1 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 32.4 | 37.3 | 41.9 | 17.7 | 37.8 | 32.5 | 19.5 | 46.9 |
| TOLUENE | 91.3 | 132.2 | 140.7 | 45.1 | 298.9 | 95.2 | 50.8 | 145.2 |
| ETHYLBENZENE | 15.0 | 17.0 | 20.5 | 8.4 | 95.5 | 18.8 | 8.7 | 22.7 |
| m&p-XYLENE | 52.4 | 58.4 | 70.8 | 28.5 | 275.3 | 65.8 | 30.6 | 78.9 |
| o-XYLENE | 21.0 | 20.7 | 25.1 | 10.2 | 78.7 | 24.5 | 10.9 | 28.7 |
| n-PROPYLBENZENE | 4.5 | * | 4.9 | 2.1 | 13.4 | 5.7 | 2.1 | 5.3 |
| m-ETHYLTOLUENE | 16.5 | * | 18.5 | 7.5 | 34.2 | 20.2 | 8.5 | 20.1 |
| p-ETHYLTOLUENE | 8.6 | 8.6 | 9.4 | 4.2 | 28.6 | 9.9 | 4.1 | 9.4 |
| 1,3,5-TRIMETHYLBENZENE | 9.6 | 9.6 | 10.5 | 4.3 | 19.6 | 11.6 | 4.7 | 11.4 |
| o-ETHYLTOLUENE | 8.4 | 8.3 | 8.5 | 3.9 | 28.0 | 9.5 | 3.9 | 9.5 |
| 1,2,4-TRIMETHYLBENZENE | 25.0 | 27.1 | 29.8 | 12.3 | 71.6 | 30.7 | 13.3 | 30.2 |
| n-DECANE | 9.0 | 7.0 | 9.0 | 5.0 | 30.2 | 10.9 | 4.9 | 10.8 |
| 1,4-DIETHYLBENZENE | 7.6 | 8.8 | 9.4 | 3.9 | 32.7 | 8.7 | 4.3 | 9.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 5.2 | 5.2 | 3.0 | 2.6 | 40.3 | 3.7 | 2.0 | 3.7 |
| SUM OTHER AROMATICS | 129.0 | 88.1 | 103.0 | 40.1 | 1255.5 | 97.0 | 44.9 | 116.8 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 42.7 | 45.3 | 62.8 | 22.6 | 47.8 | 48.9 | 24.1 | 63.1 |
| SUM UNKNOWNS | 3.3 | 2.2 | 18.4 | 5.2 | 589.6 | 6.5 | 3.0 | 12.4 |
| SUM PARAFFINS | 743.9 | 735.2 | 930.9 | 377.0 | 3935.5 | 645.6 | 313.5 | 793.4 |
| SUM OLEFINS | 273.1 | 280.6 | 301.6 | 150.8 | 674.9 | 258.3 | 143.0 | 320.3 |
| SUM AROMATICS | 436.3 | 428.8 | 505.7 | 196.4 | 2340.8 | 445.3 | 213.9 | 549.3 |
| SUM HYDROCARBONS | 1499.8 | 1493.4 | 1819.8 | 752.2 | 7650.8 | 1404.8 | 697.7 | 1738.7 |

TABLE A-30a. Hydrocarbon concentration data for NEW HAVEN, CT

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1123<br>86/06/09 | 1260<br>86/06/17 | 1416<br>86/06/25 | 1562<br>86/07/03 | 1681<br>86/07/11 | 1714<br>86/07/14 | 1903<br>86/07/24 | 1967<br>86/07/28 |
| PARAFFINS | | | | | | | | |
| ETHANE | 5.8 | 5.1 | 5.1 | 13.5 | 18.3 | 0.5 | 26.3 | 10.2 |
| PROPANE | 2.9 | 2.2 | 2.3 | 1.8 | 18.0 | 11.3 | 23.4 | 17.4 |
| ISOBUTANE | 6.1 | 2.3 | 4.9 | 18.2 | 12.6 | 13.9 | 32.0 | 9.7 |
| n-BUTANE | 10.6 | 5.0 | 11.0 | 46.3 | 28.7 | 25.1 | 65.2 | 18.3 |
| ISOPENTANE | 16.6 | 7.9 | 16.5 | 44.9 | 43.8 | 34.9 | 87.9 | 24.2 |
| n-PENTANE | 8.6 | 2.3 | 8.3 | 21.0 | 34.8 | 16.3 | 39.3 | 7.0 |
| 2,2-DIMETHYLBUTANE | 0.4 | 0.2 | 0.4 | 1.0 | 1.1 | 0.9 | 2.3 | 0.6 |
| CYCLOPENTANE | 0.8 | * | 0.7 | 1.5 | 2.1 | 1.3 | 3.9 | 1.0 |
| 2,3-DIMETHYLBUTANE | 1.1 | 0.5 | 1.2 | 2.7 | 2.7 | 2.7 | 6.8 | 1.7 |
| 2-METHYLPENTANE | 4.5 | 2.1 | 5.1 | 9.5 | 11.4 | 9.9 | 30.8 | 6.4 |
| 3-METHYLPENTANE | 2.8 | 2.3 | 3.9 | 6.4 | 10.8 | 7.5 | 14.7 | 4.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 3.0 | 1.4 | 3.4 | 5.9 | 35.1 | 6.5 | 14.5 | 3.7 |
| METHYLCYCLOPENTANE | 1.8 | 0.8 | 2.0 | 3.4 | 8.7 | 3.9 | 9.7 | 2.5 |
| 2,4-DIMETHYLPENTANE | 0.6 | 0.3 | 0.9 | 1.5 | 1.6 | 1.7 | 4.0 | 1.1 |
| CYCLOHEXANE | 0.4 | * | 0.3 | 0.6 | 2.8 | 0.8 | 2.3 | 0.4 |
| 2-METHYLHEXANE | 5.5 | * | 2.5 | 3.0 | 10.8 | 7.0 | 8.5 | 4.2 |
| 2,3-DIMETHYLPENTANE | * | 1.4 | * | 2.4 | * | * | 6.4 | * |
| 3-METHYLHEXANE | 1.9 | 0.9 | 2.0 | 3.1 | 7.8 | 4.8 | 9.3 | 2.4 |
| 2,2,4-TRIMETHYLPENTANE | 2.2 | 1.3 | 2.9 | 6.6 | 6.4 | 8.6 | 17.3 | 4.1 |
| n-HEPTANE | 1.3 | 0.6 | 1.1 | 3.3 | 9.8 | 4.7 | 7.2 | 2.3 |
| METHYLCYCLOHEXANE | 0.7 | 0.6 | 0.9 | 1.5 | 18.1 | 2.1 | 5.0 | 1.2 |
| 2,5-DIMETHYLHEXANE | 0.7 | 0.0 | 0.4 | * | 0.9 | 0.8 | 2.9 | 0.8 |
| 2,4-DIMETHYLHEXANE | 0.7 | 0.1 | 0.6 | 0.9 | 0.8 | 1.3 | 3.1 | 0.8 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 0.6 | 1.2 | 1.8 | 2.4 | 2.7 | 5.5 | 1.3 |
| 2-METHYLHEPTANE | 1.4 | 0.4 | 1.0 | 0.7 | 3.0 | 2.7 | 3.8 | * |
| 3-METHYLHEPTANE | 1.6 | 0.3 | 0.9 | 1.2 | 2.2 | 2.2 | 4.2 | 1.1 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | 1.1 | 0.3 | 1.3 | 0.5 | 1.0 | 1.6 | 1.0 |
| n-OCTANE | 0.8 | 0.6 | 1.5 | 40.3 | 4.6 | 50.4 | * | 1.2 |
| 2,4-DIMETHYLHEPTANE | * | 1.6 | 1.2 | 1.0 | 2.5 | 2.2 | 1.4 | 0.7 |
| 4-METHYLOCTANE | 1.0 | * | 1.0 | 1.5 | 1.5 | 2.0 | 3.4 | 1.2 |
| 3-METHYLOCTANE | 1.8 | 0.5 | 0.7 | 0.8 | 1.6 | 1.4 | 2.4 | 0.8 |
| n-NONANE | * | 0.3 | 0.6 | 1.4 | 2.0 | 1.9 | 4.0 | 0.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | 1.6 | * |
| n-DECANE | 1.6 | 0.5 | 0.9 | 2.4 | 4.4 | 2.9 | 10.2 | 1.7 |
| SUM OTHER PARAFFINS | 15.4 | 5.6 | 7.3 | 12.1 | 36.1 | 18.0 | 53.3 | 8.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 11.6 | 5.4 | 12.9 | 6.7 | 16.3 | 14.5 | 31.8 | 14.7 |
| PROPENE | 4.3 | 1.6 | 3.9 | 12.8 | 6.1 | 5.8 | 9.2 | 4.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.7 | 0.0 | 4.3 | 8.6 | 7.4 | 7.1 | 10.7 | 4.5 |
| 1,3-BUTADIENE | 0.9 | 0.1 | 0.7 | 0.7 | 1.0 | 0.5 | 0.6 | * |
| t-2-BUTENE | 1.3 | 0.5 | 1.3 | 4.4 | 3.2 | 2.8 | 3.5 | 1.3 |
| c-2-BUTENE | 1.0 | 0.4 | 1.1 | 3.6 | 2.5 | 2.3 | 3.9 | 1.2 |
| 1-PENTENE | 0.7 | * | 0.7 | 2.1 | 1.7 | 1.7 | 3.6 | 0.5 |
| 2-METHYL-1-BUTENE | 1.2 | 0.1 | 1.1 | 2.6 | 2.7 | 2.5 | 4.1 | 0.7 |
| ISOPRENE | 0.8 | * | * | 0.8 | 4.3 | 1.2 | 3.4 | 0.6 |
| t-2-PENTENE | 1.7 | * | 0.8 | 3.0 | 3.5 | 3.1 | 5.0 | 0.5 |
| c-2-PENTENE | 1.8 | * | 1.7 | 3.8 | * | 3.9 | 6.1 | 1.7 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.1 | * | 0.2 | 0.4 | 1.8 | * | 2.7 | 0.2 |
| 2-METHYL-2-PENTENE | 0.4 | * | 0.2 | 1.0 | 1.2 | 1.3 | 1.7 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.2 | 0.9 | 0.7 | 1.7 | 5.6 | 3.3 | 21.2 | 1.0 |
| a-PINENE | * | 0.1 | * | 0.9 | 8.5 | * | 4.5 | * |
| SUM OTHER OLEFINS | 12.3 | 6.6 | 5.9 | 12.1 | 67.7 | 17.5 | 23.4 | 6.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 5.5 | 2.6 | 6.2 | 9.3 | 13.7 | 11.7 | 27.7 | 8.1 |
| TOLUENE | 17.7 | 7.7 | 15.0 | 24.5 | 59.5 | 32.8 | 87.6 | 29.1 |
| ETHYLBENZENE | 3.9 | 1.1 | 2.8 | 3.9 | 7.0 | 5.8 | 12.0 | 3.0 |
| m&p-XYLENE | 13.9 | 3.9 | 10.1 | 14.1 | 21.7 | 17.8 | 37.3 | 10.7 |
| o-XYLENE | 6.0 | 2.5 | 4.4 | 5.4 | 9.2 | 6.9 | 14.9 | 4.6 |
| n-PROPYLBENZENE | 1.0 | 0.3 | 0.7 | 0.9 | 1.7 | 1.3 | 3.2 | 0.6 |
| m-ETHYLTOLUENE | 4.3 | 1.1 | 2.9 | 3.7 | 5.3 | 5.0 | 10.7 | 3.1 |
| p-ETHYLTOLUENE | 2.4 | 0.5 | 1.5 | 2.2 | 2.8 | 2.8 | 5.9 | 1.6 |
| 1,3,5-TRIMETHYLBENZENE | 2.4 | 0.7 | 1.8 | 2.6 | 3.4 | 3.4 | 5.1 | 1.8 |
| o-ETHYLTOLUENE | 2.2 | 0.6 | 1.4 | 1.9 | 3.6 | 2.6 | 5.7 | 1.6 |
| 1,2,4-TRIMETHYLBENZENE | 13.1 | 6.6 | 8.7 | 8.1 | 15.3 | 13.7 | 23.3 | 8.8 |
| n-DECANE | * | 0.4 | 1.1 | 1.5 | 2.8 | 2.9 | 5.5 | 0.9 |
| 1,4-DIETHYLBENZENE | * | 0.4 | 1.0 | 1.2 | 2.1 | 2.5 | 5.3 | 1.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.8 | * | 0.8 | 1.9 | 2.7 | 2.2 | 5.4 | 1.1 |
| SUM OTHER AROMATICS | 30.5 | 4.9 | 11.1 | 17.6 | 32.3 | 33.8 | 62.3 | 12.7 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 7.6 | 3.0 | 6.1 | 4.0 | 12.3 | 10.7 | 22.8 | 8.0 |
| SUM UNKNOWNS | 0.7 | 0.6 | 1.4 | 1.7 | 9.4 | 1.7 | 6.9 | 1.6 |
| SUM PARAFFINS | 105.7 | 50.2 | 94.7 | 264.8 | 349.5 | 255.3 | 515.7 | 144.1 |
| SUM OLEFINS | 44.6 | 16.0 | 36.2 | 66.0 | 134.1 | 67.9 | 136.0 | 39.0 |
| SUM AROMATICS | 105.1 | 33.9 | 70.2 | 99.5 | 183.6 | 145.7 | 312.6 | 89.6 |
| SUM HYDROCARBONS | 265.3 | 103.9 | 208.8 | 436.1 | 691.8 | 482.9 | 995.8 | 282.4 |

TABLE A-30b. Hydrocarbon concentration data for NEW HAVEN, CT

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2134<br>86/08/05 | 2269<br>86/08/13 | 2452<br>86/08/22 | 2624<br>86/08/29 | 2657<br>86/09/04 | 2710<br>86/09/09 | 2782<br>86/09/12 | 2845<br>86/09/17 |
| PARAFFINS | | | | | | | | |
| ETHANE | 11.5 | 8.1 | 12.2 | 6.3 | 7.6 | 31.3 | 4.7 | 7.5 |
| PROPANE | 12.6 | 8.5 | 10.1 | 4.1 | 6.1 | 36.8 | 6.2 | 3.8 |
| ISOBUTANE | 14.2 | 7.3 | 10.6 | 3.9 | 6.1 | 42.5 | 5.6 | 5.9 |
| n-BUTANE | 30.6 | 15.8 | 23.3 | 8.2 | 12.4 | 83.2 | 10.8 | 10.6 |
| ISOPENTANE | 36.6 | 21.9 | 33.7 | 10.9 | 20.3 | 104.0 | 16.0 | 18.3 |
| n-PENTANE | 16.1 | 9.7 | 15.3 | 5.3 | 6.3 | 49.8 | 7.0 | 8.6 |
| 2,2-DIMETHYLBUTANE | 0.8 | 0.5 | 0.9 | 0.5 | 0.5 | 3.0 | 0.4 | 0.4 |
| CYCLOPENTANE | 1.2 | 0.7 | 1.4 | 1.0 | 0.8 | 4.2 | 0.5 | 0.8 |
| 2,3-DIMETHYLBUTANE | 3.0 | 1.9 | 2.6 | 1.2 | 1.8 | 7.4 | 1.3 | 1.4 |
| 2-METHYLPENTANE | 9.7 | 6.3 | 9.6 | 4.4 | 6.2 | 34.9 | 4.6 | 5.6 |
| 3-METHYLPENTANE | 7.2 | 5.1 | 7.1 | 2.4 | 5.0 | 18.4 | 2.7 | 3.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.7 | 3.7 | 5.6 | 2.7 | 3.7 | 23.8 | 2.6 | 3.7 |
| METHYLCYCLOPENTANE | 4.0 | 2.6 | 3.8 | 1.8 | 2.6 | 14.0 | 1.8 | 2.4 |
| 2,4-DIMETHYLPENTANE | 1.6 | 1.3 | 1.7 | 1.0 | 1.2 | 4.7 | 0.8 | 1.2 |
| CYCLOHEXANE | 0.8 | 0.4 | 0.7 | 0.3 | 0.4 | 13.3 | 0.4 | 0.3 |
| 2-METHYLHEXANE | 7.3 | * | 3.6 | * | 5.1 | 25.2 | 3.7 | 4.4 |
| 2,3-DIMETHYLPENTANE | * | * | 4.5 | 3.6 | * | * | * | * |
| 3-METHYLHEXANE | 3.5 | 2.5 | 4.5 | 2.0 | 3.3 | 15.7 | 3.0 | 2.4 |
| 2,2,4-TRIMETHYLPENTANE | 6.3 | 5.1 | 6.7 | 3.8 | 4.3 | 13.9 | 4.8 | 4.2 |
| n-HEPTANE | 2.0 | 1.4 | 3.0 | 0.9 | 3.8 | 15.2 | * | 1.8 |
| METHYLCYCLOHEXANE | 1.8 | 1.5 | 2.0 | 1.1 | 1.8 | 9.9 | 1.2 | 1.2 |
| 2,5-DIMETHYLHEXANE | 0.3 | 0.1 | 1.4 | 0.2 | 0.5 | 3.7 | * | 0.2 |
| 2,4-DIMETHYLHEXANE | 1.3 | 0.9 | 1.5 | 0.7 | 0.7 | 3.8 | 0.4 | 0.9 |
| 2,3,4-TRIMETHYLPENTANE | 2.3 | 1.8 | 3.6 | 1.4 | 1.6 | 5.9 | 1.1 | 1.7 |
| 2-METHYLHEPTANE | 0.8 | 0.6 | 2.7 | 1.1 | * | 8.4 | * | 1.4 |
| 3-METHYLHEPTANE | 1.6 | 1.2 | 2.0 | 0.9 | 1.3 | 8.9 | 0.8 | 1.2 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.5 | 0.7 | 0.8 | 0.9 | 2.4 | 1.7 | 0.5 |
| n-OCTANE | 2.8 | 2.4 | * | 0.8 | 2.0 | 12.8 | 53.9 | 1.2 |
| 2,4-DIMETHYLHEPTANE | 1.6 | 2.1 | 2.5 | 1.4 | 1.0 | 4.9 | 2.0 | 1.3 |
| 4-METHYLOCTANE | 1.8 | 1.4 | 1.5 | 1.2 | 1.7 | 6.5 | 0.9 | 1.3 |
| 3-METHYLOCTANE | 1.3 | 0.9 | 2.0 | 0.8 | 1.0 | 5.0 | 1.0 | 0.6 |
| n-NONANE | 1.4 | 1.2 | 2.0 | 0.7 | 1.2 | 7.6 | 0.9 | 0.8 |
| 4-METHYLNONANE | * | * | * | * | * | 2.3 | * | * |
| n-DECANE | 3.5 | 2.0 | 3.7 | 1.1 | 2.4 | 11.8 | 2.2 | 2.0 |
| SUM OTHER PARAFFINS | 17.7 | 12.1 | 28.1 | 9.4 | 12.3 | 90.6 | 10.9 | 8.8 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 18.3 | 12.2 | 21.1 | 13.3 | 13.7 | 33.9 | 12.0 | 15.1 |
| PROPENE | 6.2 | 4.2 | 7.2 | 4.1 | 4.3 | 11.5 | 3.3 | 5.1 |
| 2-METHYLPROPYLENE,BUTENE-1 | 7.0 | 4.3 | 7.1 | 3.1 | 4.2 | 19.0 | 3.8 | 4.5 |
| 1,3-BUTADIENE | 1.4 | 0.5 | 1.4 | 0.1 | 0.2 | 1.5 | 0.6 | 0.6 |
| t-2-BUTENE | 2.7 | 1.3 | 2.8 | 0.7 | 1.0 | 9.9 | 1.3 | 1.4 |
| c-2-BUTENE | 2.1 | 1.1 | 2.3 | 0.6 | 1.0 | 9.2 | 1.1 | 1.2 |
| 1-PENTENE | 1.7 | 1.0 | 1.4 | 0.3 | 0.5 | 5.0 | 0.7 | 0.3 |
| 2-METHYL-1-BUTENE | 2.5 | 1.5 | 2.7 | 0.5 | 0.8 | 10.5 | 1.1 | 1.2 |
| ISOPRENE | 2.2 | 1.4 | 1.5 | 1.2 | 0.3 | 4.2 | 0.5 | 0.5 |
| t-2-PENTENE | 2.7 | 1.7 | 2.9 | 0.1 | 0.4 | 10.2 | 0.9 | 0.4 |
| c-2-PENTENE | 3.6 | 2.5 | 4.6 | * | * | * | * | 2.4 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.5 | 0.3 | * | 0.2 | 0.3 | 3.2 | 0.0 | 0.4 |
| 2-METHYL-2-PENTENE | 0.9 | 0.6 | 1.2 | 0.2 | 0.8 | 3.8 | 0.6 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 9.2 | 2.8 | 9.3 | 1.3 | 3.2 | 27.1 | 2.8 | 1.1 |
| a-PINENE | 1.8 | 0.9 | 4.1 | * | * | 5.4 | * | * |
| SUM OTHER OLEFINS | 12.8 | 7.3 | 29.7 | 9.4 | 10.8 | 95.6 | 6.8 | 5.9 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 14.2 | 8.1 | 54.9 | 7.0 | 18.5 | 57.4 | 5.2 | 8.2 |
| TOLUENE | 34.8 | 23.9 | 66.5 | 17.7 | 41.7 | 170.1 | 14.8 | 20.1 |
| ETHYLBENZENE | 5.0 | 3.5 | 5.6 | 3.4 | 4.1 | 20.7 | 2.3 | 3.4 |
| m&p-XYLENE | 16.9 | 13.2 | 20.4 | 11.6 | 15.4 | 64.6 | 9.9 | 12.7 |
| o-XYLENE | 6.6 | 5.1 | 10.7 | 4.7 | 6.3 | 23.9 | 3.5 | 4.0 |
| n-PROPYLBENZENE | 1.4 | 0.7 | 1.1 | 0.7 | 0.8 | 3.9 | 0.6 | 0.7 |
| m-ETHYLTOLUENE | 4.6 | 3.5 | 5.4 | 3.4 | 4.1 | 12.9 | 2.3 | 3.7 |
| p-ETHYLTOLUENE | 2.4 | 1.8 | 2.8 | 1.8 | 2.1 | 7.1 | 1.5 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 3.0 | 2.5 | 3.5 | 2.1 | 2.7 | 6.9 | 1.7 | 2.3 |
| o-ETHYLTOLUENE | 2.5 | 1.8 | 2.7 | 1.9 | 2.1 | 8.2 | 1.4 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 11.5 | 9.2 | 11.9 | 9.3 | 10.5 | 25.0 | 4.2 | 8.4 |
| n-DECANE | 2.2 | 1.3 | 2.5 | 1.4 | 1.4 | 6.8 | 0.9 | 1.6 |
| 1,4-DIETHYLBENZENE | 1.7 | 1.5 | 2.7 | 1.4 | 1.5 | 5.2 | 1.1 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.8 | 1.7 | 2.9 | 1.3 | 1.9 | 6.8 | 1.3 | 1.6 |
| SUM OTHER AROMATICS | 27.6 | 19.0 | 47.2 | 20.2 | 20.9 | 81.7 | 6.6 | 9.8 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 12.8 | 9.2 | 18.9 | 12.5 | 11.4 | 34.2 | 3.2 | 15.5 |
| SUM UNKNOWNS | 1.6 | 1.1 | 10.9 | 0.8 | 2.7 | 17.1 | 5.3 | 0.9 |
| SUM PARAFFINS | 215.1 | 132.9 | 216.1 | 87.4 | 127.4 | 727.4 | 155.1 | 111.2 |
| SUM OLEFINS | 76.3 | 44.4 | 99.8 | 35.8 | 42.2 | 250.6 | 36.3 | 41.6 |
| SUM AROMATICS | 137.7 | 97.4 | 241.4 | 88.5 | 134.6 | 501.7 | 57.9 | 82.4 |
| SUM HYDROCARBONS | 443.6 | 285.1 | 587.3 | 225.5 | 318.5 | 1531.1 | 258.0 | 252.1 |

## TABLE A-30c. Hydrocarbon concentration data for NEW HAVEN, CT

| Compound | ID Number and Sample Date<br>2949<br>86/09/24 |
|---|---|
| PARAFFINS | |
| ETHANE | 32.3 |
| PROPANE | 33.0 |
| ISOBUTANE | 56.8 |
| n-BUTANE | 91.4 |
| ISOPENTANE | 124.8 |
| n-PENTANE | 51.8 |
| 2,2-DIMETHYLBUTANE | 3.9 |
| CYCLOPENTANE | 4.5 |
| 2,3-DIMETHYLBUTANE | 9.1 |
| 2-METHYLPENTANE | 36.8 |
| 3-METHYLPENTANE | 20.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 18.3 |
| METHYLCYCLOPENTANE | 13.5 |
| 2,4-DIMETHYLPENTANE | 5.9 |
| CYCLOHEXANE | 2.1 |
| 2-METHYLHEXANE | 12.7 |
| 2,3-DIMETHYLPENTANE | 10.3 |
| 3-METHYLHEXANE | 12.7 |
| 2,2,4-TRIMETHYLPENTANE | 21.0 |
| n-HEPTANE | 9.2 |
| METHYLCYCLOHEXANE | 6.6 |
| 2,5-DIMETHYLHEXANE | 4.1 |
| 2,4-DIMETHYLHEXANE | 4.4 |
| 2,3,4-TRIMETHYLPENTANE | 8.0 |
| 2-METHYLHEPTANE | 5.9 |
| 3-METHYLHEPTANE | 6.0 |
| 2,2,5-TRIMETHYLHEXANE | 2.1 |
| n-OCTANE | * |
| 2,4-DIMETHYLHEPTANE | 2.4 |
| 4-METHYLOCTANE | 5.1 |
| 3-METHYLOCTANE | 4.6 |
| n-NONANE | 5.3 |
| 4-METHYLNONANE | * |
| n-DECANE | 10.0 |
| SUM OTHER PARAFFINS | 142.1 |

| | |
|---|---|
| OLEFINS | |
| ETHYLENE | 72.0 |
| PROPENE | 24.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 29.5 |
| 1,3-BUTADIENE | 6.2 |
| t-2-BUTENE | 15.7 |
| c-2-BUTENE | 11.8 |
| 1-PENTENE | 6.9 |
| 2-METHYL-1-BUTENE | 11.3 |
| ISOPRENE | 5.4 |
| t-2-PENTENE | 12.9 |
| c-2-PENTENE | 20.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 2.9 |
| 2-METHYL-2-PENTENE | 5.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 22.3 |
| a-PINENE | 2.9 |
| SUM OTHER OLEFINS | 77.8 |
| AROMATICS | |
| BENZENE | 39.1 |
| TOLUENE | 115.5 |
| ETHYLBENZENE | 18.8 |
| m&p-XYLENE | 63.8 |
| o-XYLENE | 27.8 |
| n-PROPYLBENZENE | 8.0 |
| m-ETHYLTOLUENE | 28.7 |
| p-ETHYLTOLUENE | 14.2 |
| 1,3,5-TRIMETHYLBENZENE | 16.9 |
| o-ETHYLTOLUENE | 12.4 |
| 1,2,4-TRIMETHYLBENZENE | 39.7 |
| n-DECANE | 11.2 |
| 1,4-DIETHYLBENZENE | 7.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 10.7 |
| SUM OTHER AROMATICS | 96.6 |
| SUMMARY | |
| ACETYLENE | 34.7 |
| SUM UNKNOWNS | 4.6 |
| SUM PARAFFINS | 778.4 |
| SUM OLEFINS | 328.7 |
| SUM AROMATICS | 511.6 |
| SUM HYDROCARBONS | 1658.3 |

## TABLE A-31a. Hydrocarbon concentration data for ORANGE, TX

| Compound | ID Number and Sample Date<br>1045<br>85/06/05 | 1105<br>85/06/11 | 1190<br>84/07/09 | 1224<br>85/06/20 | 1335<br>85/06/28 | 1359<br>84/07/20 | 1384<br>85/07/01 | 1460<br>84/07/26 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 20.3 | 13.8 | 28.6 | 77.3 | 37.4 | 35.4 | 94.1 | 84.6 |
| PROPANE | 13.6 | 9.1 | 32.2 | 67.2 | 46.2 | 32.4 | 100.5 | 70.4 |
| ISOBUTANE | 6.7 | 10.2 | 21.7 | 30.6 | 18.5 | 21.1 | 51.3 | 32.4 |
| n-BUTANE | 26.0 | 26.2 | 47.7 | 42.3 | 27.1 | 28.7 | 75.3 | 45.0 |
| ISOPENTANE | 19.9 | 9.0 | 27.1 | 38.0 | 18.0 | 32.9 | 73.9 | 45.3 |
| n-PENTANE | 9.1 | 3.5 | 21.2 | 22.0 | 11.0 | 13.8 | 42.0 | 22.4 |
| 2,2-DIMETHYLBUTANE | 0.6 | 0.3 | 1.1 | 2.0 | 0.7 | 1.1 | 2.9 | 2.1 |
| CYCLOPENTANE | 0.8 | 0.8 | 3.2 | 2.2 | 1.5 | 1.7 | 3.6 | 2.4 |
| 2,3-DIMETHYLBUTANE | 1.4 | 1.7 | 3.1 | 3.3 | 1.3 | 2.3 | 5.1 | 4.4 |
| 2-METHYLPENTANE | 6.8 | 11.0 | 12.6 | 11.7 | 4.8 | 11.5 | 23.3 | 18.5 |
| 3-METHYLPENTANE | 4.2 | 12.8 | 14.6 | 7.4 | 4.1 | 8.3 | 12.7 | 12.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.1 | 46.1 | 27.9 | 10.8 | 4.1 | 8.9 | 19.3 | 15.4 |
| METHYLCYCLOPENTANE | 2.3 | 9.5 | 10.5 | 7.0 | 2.4 | 7.8 | 10.4 | 8.6 |
| 2,4-DIMETHYLPENTANE | 0.9 | 2.7 | 2.1 | 1.4 | 0.4 | 1.2 | 1.8 | 1.6 |
| CYCLOHEXANE | 409.3 | 76.9 | 19.1 | 4.5 | 1.6 | 2.7 | 8.0 | 7.0 |
| 2-METHYLHEXANE | * | 1.4 | 7.7 | 6.1 | 2.9 | 4.1 | 7.8 | 5.7 |
| 2,3-DIMETHYLPENTANE | 25.9 | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 5.0 | 0.8 | 9.0 | 4.4 | 1.6 | 3.0 | 6.6 | 4.2 |
| 2,2,4-TRIMETHYLPENTANE | 3.3 | 1.2 | 3.5 | 3.4 | 0.9 | 3.2 | 5.1 | 7.3 |
| n-HEPTANE | 1.6 | 0.7 | 4.0 | 4.2 | 1.7 | 3.3 | 7.5 | 3.4 |
| METHYLCYCLOHEXANE | 1.1 | 0.5 | 3.0 | 6.0 | 2.1 | 2.6 | 9.1 | 6.9 |
| 2,5-DIMETHYLHEXANE | 0.4 | 0.3 | 0.9 | 1.0 | 0.5 | 0.8 | 1.6 | 1.2 |
| 2,4-DIMETHYLHEXANE | 0.7 | 0.4 | 1.1 | 1.1 | 0.3 | 1.0 | 1.3 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 77.9 | 0.4 | 0.7 | 1.7 | 0.8 | 1.0 | 1.8 | 1.4 |
| 2-METHYLHEPTANE | 0.6 | 0.4 | 1.8 | 1.4 | 0.8 | 1.3 | 2.2 | 1.0 |
| 3-METHYLHEPTANE | 0.7 | 0.4 | 1.5 | 1.4 | 0.6 | 0.9 | 2.2 | 1.4 |
| 2,2,5-TRIMETHYLHEXANE | * | * | 0.3 | 0.6 | * | 0.2 | 0.7 | 0.5 |
| n-OCTANE | 0.7 | 0.4 | 2.3 | 1.8 | 1.0 | 1.4 | 3.1 | 1.1 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.1 | * | * | * | 0.3 | * |
| 4-METHYLOCTANE | 0.4 | * | * | 0.8 | 0.3 | * | 1.3 | * |
| 3-METHYLOCTANE | 0.3 | * | 0.8 | 0.9 | 0.7 | 0.4 | 1.7 | 0.6 |
| n-NONANE | 30.0 | 0.3 | 2.9 | 2.1 | 0.5 | 1.2 | 1.5 | 1.1 |
| 4-METHYLNONANE | * | * | * | * | * | 3.0 | * | * |
| n-DECANE | 2.9 | 0.7 | 3.2 | 2.5 | 0.5 | 1.7 | 1.6 | 1.6 |
| SUM OTHER PARAFFINS | 85.2 | 34.2 | 67.3 | 31.4 | 15.4 | 28.4 | 33.8 | 43.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 27.9 | 50.0 | 45.0 | 17.6 | 4.2 | 9.1 | 23.4 | 16.9 |
| PROPENE | 9.8 | 18.9 | 5.4 | 8.1 | 0.6 | 2.0 | 6.4 | 3.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.5 | 4.8 | 4.9 | 0.2 | 1.0 | 3.4 | 5.6 | 4.0 |
| 1,3-BUTADIENE | 6.5 | 12.1 | 3.3 | 0.5 | * | 1.1 | 6.9 | 0.7 |
| t-2-BUTENE | 5.9 | 2.4 | 1.9 | 1.4 | * | 1.9 | 3.1 | 2.3 |
| c-2-BUTENE | 2.8 | 1.6 | 1.2 | 0.6 | 0.2 | 1.7 | 0.9 | 1.6 |
| 1-PENTENE | 0.6 | 0.2 | 0.7 | 0.6 | 0.2 | 5.6 | 1.7 | 1.2 |
| 2-METHYL-1-BUTENE | 0.9 | 1.1 | 0.8 | 0.7 | 0.3 | 1.5 | 1.3 | 1.8 |
| ISOPRENE | 1.8 | 1.2 | 3.0 | 2.3 | 2.3 | 4.6 | 1.2 | 4.6 |
| t-2-PENTENE | 1.2 | 0.4 | 0.9 | 0.9 | 0.3 | 1.8 | 1.4 | 2.3 |
| c-2-PENTENE | 1.4 | 5.6 | 0.7 | 1.0 | 0.3 | 1.8 | 1.4 | 3.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.0 | 0.0 | * | * | * | * | 0.9 | 0.2 |
| 2-METHYL-2-PENTENE | 0.4 | 0.2 | 0.2 | 0.2 | * | 0.6 | 0.3 | 0.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.7 | 0.9 | 9.4 | 1.2 | 0.6 | 0.9 | 1.3 | 0.9 |
| a-PINENE | 2.0 | 2.7 | 2.5 | 4.7 | 4.4 | * | 6.7 | 5.9 |
| SUM OTHER OLEFINS | 70.4 | 44.9 | 76.5 | 18.4 | 17.7 | 44.9 | 32.4 | 42.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 46.3 | 14.1 | 13.3 | 8.6 | 3.1 | 14.4 | 11.4 | 8.1 |
| TOLUENE | 23.3 | 7.2 | 38.5 | 17.1 | 5.9 | 10.9 | 29.0 | 16.6 |
| ETHYLBENZENE | 2.4 | 1.3 | 3.7 | 2.9 | 1.0 | 2.3 | 5.2 | 3.5 |
| m&p-XYLENE | 7.4 | 4.6 | 10.7 | 9.6 | 4.0 | 6.3 | 16.6 | 10.6 |
| o-XYLENE | 3.6 | 3.1 | 4.2 | 3.7 | 1.3 | 2.3 | 5.7 | 4.1 |
| n-PROPYLBENZENE | 0.7 | 0.5 | 1.4 | 0.8 | 0.1 | 0.7 | 1.1 | 1.1 |
| m-ETHYLTOLUENE | 4.1 | 1.2 | 4.0 | 3.2 | 1.1 | 2.2 | 3.9 | 3.8 |
| p-ETHYLTOLUENE | 1.7 | 1.5 | 2.3 | 1.6 | 0.5 | 1.2 | 2.1 | 2.0 |
| 1,3,5-TRIMETHYLBENZENE | 1.6 | 0.7 | 1.4 | 1.7 | 0.7 | 0.9 | 2.2 | 1.8 |
| o-ETHYLTOLUENE | 1.8 | 1.4 | 2.5 | 1.8 | 0.7 | 1.4 | 2.0 | 2.5 |
| 1,2,4-TRIMETHYLBENZENE | 4.6 | 2.2 | 6.3 | 4.1 | 1.6 | 3.2 | 6.8 | 5.2 |
| n-DECANE | 54.5 | 46.9 | 5.6 | * | * | 3.6 | 27.4 | 4.1 |
| 1,4-DIETHYLBENZENE | 1.3 | 1.0 | 1.3 | 1.2 | 0.4 | 1.7 | 1.8 | 1.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.5 | 0.8 | 3.3 | 0.9 | 0.3 | 2.4 | 1.0 | 0.9 |
| SUM OTHER AROMATICS | 75.3 | 34.1 | 53.0 | 152.9 | 27.5 | 124.7 | 26.0 | 30.0 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 6.6 | 6.7 | 6.2 | 6.4 | 1.3 | 2.9 | 9.7 | 7.8 |
| SUM UNKNOWNS | 10.4 | 2.0 | 7.1 | 13.1 | 9.1 | 0.7 | 26.7 | 1.2 |
| SUM PARAFFINS | 764.0 | 276.9 | 384.1 | 399.9 | 211.3 | 268.6 | 614.8 | 456.2 |
| SUM OLEFINS | 137.5 | 147.6 | 157.1 | 59.2 | 32.7 | 81.4 | 95.6 | 93.7 |
| SUM AROMATICS | 230.8 | 121.3 | 152.1 | 210.6 | 48.7 | 178.9 | 142.7 | 96.6 |
| SUM HYDROCARBONS | 1149.5 | 555.6 | 707.7 | 689.4 | 303.3 | 532.7 | 889.8 | 655.7 |

## TABLE A-31b. Hydrocarbon concentration data for ORANGE, TX

| Compound | ID Number and Sample Date 1483 85/07/08 | 1497 84/07/30 | 1575 85/07/15 | 1640 84/08/06 | 1670 84/08/08 | 1716 85/07/23 | 1774 84/08/15 | 1836 85/07/31 |
|---|---|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | | | |
| ETHANE | 102.3 | 12.4 | 51.3 | 34.0 | 6.4 | 42.7 | 74.7 | 42.4 |
| PROPANE | 212.8 | 10.5 | 59.2 | 35.5 | 4.0 | 48.3 | 114.1 | 58.2 |
| ISOBUTANE | 40.7 | 5.7 | 41.5 | 39.6 | 2.5 | 35.0 | 56.6 | 33.1 |
| n-BUTANE | 53.2 | 10.9 | 51.6 | 30.4 | 4.8 | 52.9 | 69.7 | 42.4 |
| ISOPENTANE | 52.7 | 10.7 | 55.6 | 30.8 | 6.1 | 49.4 | 47.2 | 47.8 |
| n-PENTANE | 22.8 | 5.3 | 22.6 | 18.3 | 3.7 | 29.0 | 27.7 | 21.4 |
| 2,2-DIMETHYLBUTANE | * | 0.2 | 1.7 | 1.4 | 0.2 | 2.3 | 2.1 | 1.3 |
| CYCLOPENTANE | 2.2 | 0.4 | 2.6 | 2.2 | 0.4 | 3.9 | 2.4 | 2.0 |
| 2,3-DIMETHYLBUTANE | 3.5 | 0.5 | 4.7 | 3.4 | 0.7 | 3.1 | 3.0 | 3.2 |
| 2-METHYLPENTANE | 12.3 | 3.3 | 22.3 | 17.2 | 3.0 | 14.6 | 13.6 | 13.5 |
| 3-METHYLPENTANE | 8.2 | 2.0 | 16.6 | 16.8 | 2.8 | 13.4 | 7.3 | 8.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 11.6 | 2.0 | 38.0 | 60.6 | 5.0 | 21.0 | 11.7 | 14.1 |
| METHYLCYCLOPENTANE | 7.2 | 1.0 | 12.7 | 17.8 | 1.2 | 7.8 | 7.1 | 6.3 |
| 2,4-DIMETHYLPENTANE | 1.3 | 0.1 | 2.0 | 1.7 | 0.4 | 1.0 | 1.7 | 1.3 |
| CYCLOHEXANE | 5.4 | 0.4 | 32.0 | 36.4 | 6.4 | 3.9 | 5.1 | 5.9 |
| 2-METHYLHEXANE | 8.1 | 0.4 | 10.3 | 6.8 | 1.1 | 5.6 | 3.9 | 8.1 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 4.8 | 5.6 | 6.7 | 5.1 | * | 3.9 | 3.0 | 4.3 |
| 2,2,4-TRIMETHYLPENTANE | 3.6 | 0.8 | 6.3 | 7.7 | 1.1 | 2.6 | 2.3 | 5.2 |
| n-HEPTANE | 4.7 | 0.5 | 5.3 | 4.1 | 1.0 | 3.8 | 3.6 | 3.5 |
| METHYLCYCLOHEXANE | 8.1 | 0.4 | 4.4 | 3.8 | 0.6 | 4.3 | 6.0 | 3.9 |
| 2,5-DIMETHYLHEXANE | 1.3 | * | 1.7 | 1.4 | 0.2 | 0.9 | 0.7 | 1.4 |
| 2,4-DIMETHYLHEXANE | 1.0 | 0.4 | 1.5 | 1.5 | 0.3 | 0.8 | 0.8 | 1.2 |
| 2,3,4-TRIMETHYLPENTANE | 1.4 | 0.1 | 2.1 | 1.8 | 0.3 | 1.2 | 0.7 | 1.9 |
| 2-METHYLHEPTANE | 1.6 | 0.3 | 2.1 | 1.3 | 0.5 | 0.8 | 1.3 | 1.6 |
| 3-METHYLHEPTANE | 1.8 | 0.1 | 2.4 | 2.0 | 1.4 | 1.5 | 0.9 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.4 | * | 0.6 | 0.4 | * | 0.1 | 0.3 | 0.4 |
| n-OCTANE | 2.2 | 0.2 | 2.1 | 1.5 | 0.5 | 1.5 | 1.1 | 1.5 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | 0.8 | * | 1.3 | 1.0 | * | 0.6 | 0.5 | 0.8 |
| 3-METHYLOCTANE | 1.2 | 0.1 | 1.4 | 0.8 | 0.3 | 0.8 | 0.4 | 0.9 |
| n-NONANE | 1.3 | * | 1.2 | 0.9 | 0.7 | 0.9 | 1.1 | 0.8 |
| 4-METHYLNONANE | * | 0.2 | * | * | * | * | * | * |
| n-DECANE | 1.1 | 0.8 | 1.5 | 1.4 | 1.0 | 1.0 | 1.0 | 1.1 |
| SUM OTHER PARAFFINS | 34.5 | 43.3 | 31.1 | 34.9 | 27.2 | 36.7 | 38.8 | 35.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 10.5 | 7.2 | 65.5 | 68.5 | 73.4 | 11.5 | 15.4 | 35.2 |
| PROPENE | 6.0 | 0.9 | 23.9 | 8.9 | 1.0 | 3.8 | 2.4 | 17.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.2 | 1.8 | 6.2 | 5.2 | 1.7 | 2.9 | 2.6 | 0.2 |
| 1,3-BUTADIENE | 0.5 | 0.1 | 96.8 | 4.4 | 0.5 | 4.6 | 0.4 | 3.2 |
| t-2-BUTENE | 2.5 | 0.8 | 3.7 | 2.8 | 0.6 | 2.0 | 1.8 | 2.6 |
| c-2-BUTENE | 1.4 | 0.3 | 2.8 | 2.1 | 0.4 | 1.3 | 0.7 | 2.5 |
| 1-PENTENE | 2.7 | 0.3 | 1.6 | 1.9 | 0.2 | 1.1 | 0.6 | 1.3 |
| 2-METHYL-1-BUTENE | 1.2 | 0.3 | 2.5 | 1.8 | 0.3 | 1.8 | 1.0 | 2.5 |
| ISOPRENE | 0.7 | 1.6 | 1.4 | 4.7 | 0.9 | 1.3 | 2.8 | 0.5 |
| t-2-PENTENE | 1.7 | 0.4 | 3.2 | 2.0 | 0.2 | 3.1 | 0.6 | 2.0 |
| c-2-PENTENE | 2.4 | 0.2 | 3.6 | 2.4 | 0.3 | 3.0 | 0.9 | 2.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | 1.4 | * | 0.2 | 0.2 | 1.2 | * |
| 2-METHYL-2-PENTENE | 0.5 | 0.0 | 0.9 | 1.0 | 0.1 | 0.3 | 0.3 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.6 | 1.3 | 1.3 | 1.0 | 0.7 | 0.8 | 0.7 | 0.5 |
| a-PINENE | 3.3 | 1.0 | 10.7 | 1.7 | 0.9 | 6.4 | 8.1 | 3.1 |
| SUM OTHER OLEFINS | 33.7 | 56.3 | 35.0 | 48.1 | 34.9 | 17.5 | 40.4 | 36.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 7.6 | 3.8 | 15.9 | 9.8 | 3.0 | 7.9 | 6.6 | 8.7 |
| TOLUENE | 18.8 | 3.2 | 32.4 | 18.6 | 8.2 | 15.3 | 12.2 | 20.0 |
| ETHYLBENZENE | 3.3 | 0.7 | 6.1 | 4.4 | 1.3 | 2.4 | 3.0 | 4.2 |
| m&p-XYLENE | 11.4 | 1.6 | 20.4 | 14.0 | 3.8 | 8.7 | 7.9 | 13.0 |
| o-XYLENE | 4.6 | 0.9 | 7.9 | 5.1 | 1.7 | 3.9 | 2.8 | 5.7 |
| n-PROPYLBENZENE | 0.5 | 0.1 | 0.9 | 1.2 | * | 0.4 | 0.7 | 0.6 |
| m-ETHYLTOLUENE | 2.6 | 1.4 | 4.7 | 4.6 | 1.5 | 2.4 | 2.6 | 3.3 |
| p-ETHYLTOLUENE | 1.3 | 0.9 | 1.7 | 2.4 | 1.1 | 1.1 | 1.6 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 2.1 | 0.4 | 2.1 | 2.6 | 0.6 | 1.6 | 0.9 | 1.7 |
| o-ETHYLTOLUENE | 1.5 | 0.4 | 2.7 | 2.3 | 1.2 | 1.3 | 1.3 | 1.5 |
| 1,2,4-TRIMETHYLBENZENE | 5.1 | 1.9 | 8.1 | 7.7 | 2.1 | 4.3 | 3.5 | 6.6 |
| n-DECANE | 0.7 | 2.6 | * | 2.5 | 2.5 | 0.6 | 3.2 | 2.0 |
| 1,4-DIETHYLBENZENE | 1.4 | 1.6 | 1.7 | 2.5 | 0.7 | 0.8 | 0.9 | 1.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.9 | 0.7 | 1.1 | 2.1 | 1.3 | 0.7 | 0.9 | * |
| SUM OTHER AROMATICS | 22.7 | 23.7 | 50.3 | 30.5 | 23.6 | 17.3 | 28.8 | 16.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 6.0 | 41.8 | 9.7 | 21.1 | 3.3 | 3.7 | 5.8 | 8.5 |
| SUM UNKNOWNS | 49.6 | 16.1 | 5.7 | 1.1 | 15.0 | 11.7 | 7.0 | 2.9 |
| SUM PARAFFINS | 615.5 | 120.0 | 498.0 | 424.2 | 84.9 | 396.5 | 511.6 | 376.6 |
| SUM OLEFINS | 72.5 | 73.3 | 261.3 | 156.8 | 116.9 | 62.4 | 80.6 | 112.0 |
| SUM AROMATICS | 85.3 | 44.5 | 156.8 | 110.9 | 53.2 | 69.1 | 77.2 | 88.0 |
| SUM HYDROCARBONS | 829.0 | 295.9 | 931.6 | 714.3 | 273.5 | 543.6 | 682.4 | 588.2 |

TABLE A-31c. Hydrocarbon concentration data for ORANGE, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1981 85/08/09 | 2078 85/08/15 | 2158 84/09/07 | 2159 85/08/20 | 2279 84/09/14 | 2321 85/08/30 | 2340 84/09/18 | 2400 85/09/06 |
| PARAFFINS | | | | | | | | |
| ETHANE | 34.4 | 9.7 | 59.2 | 39.2 | 7.8 | 72.0 | 35.3 | 13.7 |
| PROPANE | 50.3 | 12.5 | 54.3 | 79.5 | 9.4 | 65.1 | 97.5 | 8.4 |
| ISOBUTANE | 32.0 | 6.2 | 30.6 | 47.7 | 10.3 | 31.1 | 13.8 | 33.2 |
| n-BUTANE | 41.4 | 7.7 | 46.2 | 69.6 | 16.0 | 39.7 | 22.0 | 10.0 |
| ISOPENTANE | 32.4 | 6.1 | 37.2 | 36.7 | 12.9 | 29.6 | 17.6 | 7.5 |
| n-PENTANE | 18.5 | 1.7 | 18.6 | 27.2 | 5.8 | 17.5 | 10.2 | 4.8 |
| 2,2-DIMETHYLBUTANE | 1.1 | * | 1.3 | 1.0 | 0.1 | 1.0 | 1.4 | 0.1 |
| CYCLOPENTANE | 1.7 | 0.1 | 3.6 | 2.3 | 0.6 | 1.3 | 1.1 | 0.3 |
| 2,3-DIMETHYLBUTANE | 2.3 | 0.3 | 2.7 | 2.4 | 1.4 | 2.2 | 1.3 | 0.5 |
| 2-METHYLPENTANE | 9.1 | 1.4 | 12.5 | 11.4 | 5.5 | 9.0 | 8.3 | 2.0 |
| 3-METHYLPENTANE | 6.8 | 0.8 | 7.6 | 8.2 | 6.9 | 7.1 | 9.6 | 4.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 8.8 | 1.2 | 15.8 | 20.0 | 6.6 | 13.0 | 5.8 | 4.4 |
| METHYLCYCLOPENTANE | 5.2 | 0.6 | 7.6 | 8.7 | 1.8 | 8.8 | 3.6 | 1.2 |
| 2,4-DIMETHYLPENTANE | 0.9 | 3.2 | 1.3 | 0.7 | 0.3 | 2.3 | 0.6 | * |
| CYCLOHEXANE | 3.7 | 0.4 | 12.0 | 7.3 | 0.9 | 4.9 | 2.5 | 43.3 |
| 2-METHYLHEXANE | 5.0 | 1.1 | 2.9 | 6.6 | 0.2 | 5.4 | 2.8 | 4.0 |
| 2,3-DIMETHYLPENTANE | * | * | 1.9 | * | * | * | * | * |
| 3-METHYLHEXANE | 3.5 | 0.3 | 3.3 | 3.1 | 1.9 | 2.5 | 3.1 | 0.3 |
| 2,2,4-TRIMETHYLPENTANE | 3.3 | 0.4 | 4.2 | 2.4 | 0.4 | 2.6 | 1.7 | 0.9 |
| n-HEPTANE | 3.6 | 0.5 | 2.8 | 4.8 | 0.7 | 2.9 | 3.6 | * |
| METHYLCYCLOHEXANE | 4.8 | 0.5 | 3.4 | 6.8 | 0.6 | 4.3 | 5.3 | 0.6 |
| 2,5-DIMETHYLHEXANE | 0.9 | * | 0.9 | 1.0 | 0.6 | 0.1 | 0.9 | * |
| 2,4-DIMETHYLHEXANE | 0.7 | * | 0.8 | 0.6 | 0.4 | 0.3 | 0.8 | 0.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | * | 1.1 | 1.1 | 0.1 | 0.3 | 0.6 | * |
| 2-METHYLHEPTANE | 1.7 | 0.0 | 0.8 | 2.0 | 0.3 | 0.6 | 2.8 | 0.2 |
| 3-METHYLHEPTANE | 1.1 | * | 1.2 | 1.4 | 0.6 | 1.1 | 2.3 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | * | 0.4 | 0.1 | 0.1 | 0.5 | 0.6 | 0.2 |
| n-OCTANE | 1.8 | 0.4 | 1.2 | 2.6 | 0.7 | 1.7 | 5.7 | 1.3 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | 0.2 | 2.8 |
| 4-METHYLOCTANE | 0.7 | * | 0.6 | 0.7 | 0.7 | 0.3 | 1.7 | 0.1 |
| 3-METHYLOCTANE | 1.0 | 1.0 | 0.3 | 1.8 | 0.4 | 1.2 | 1.3 | 0.7 |
| n-NONANE | 0.9 | 0.3 | 0.6 | 1.3 | 3.6 | 0.8 | 3.7 | 0.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | 0.6 | * |
| n-DECANE | 0.8 | 0.4 | 0.6 | 0.9 | 4.4 | 0.6 | 3.5 | 0.3 |
| SUM OTHER PARAFFINS | 15.5 | 30.9 | 11.7 | 30.8 | 62.5 | 35.3 | 53.7 | 18.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 6.9 | 1.2 | 39.3 | 4.9 | 5.0 | 17.6 | 17.5 | 89.8 |
| PROPENE | 3.0 | 0.6 | 5.0 | 6.7 | 1.2 | 17.1 | 4.6 | 14.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 0.3 | 0.7 | 3.4 | 23.9 | 2.2 | 4.6 | 2.6 | 2.0 |
| 1,3-BUTADIENE | 1.8 | * | 1.2 | 29.4 | 0.8 | 0.3 | 3.5 | 2.3 |
| t-2-BUTENE | 1.3 | * | 1.9 | 23.2 | 0.7 | 1.1 | 0.8 | 1.0 |
| c-2-BUTENE | 0.8 | * | 1.2 | 6.9 | 0.5 | 0.7 | 0.6 | 0.6 |
| 1-PENTENE | 0.4 | * | 1.4 | 0.4 | 0.2 | 1.1 | 0.7 | 0.2 |
| 2-METHYL-1-BUTENE | 0.6 | * | 2.1 | 0.6 | 0.1 | 1.8 | 0.6 | 0.3 |
| ISOPRENE | 0.4 | * | 1.4 | 0.3 | 0.4 | 0.3 | 1.1 | 0.1 |
| t-2-PENTENE | 0.8 | * | 2.1 | 0.8 | 0.7 | 0.9 | 0.7 | 0.4 |
| c-2-PENTENE | 0.9 | * | 2.7 | 0.6 | * | 0.4 | 0.7 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.1 | * | * | * | * | * | * | * |
| 2-METHYL-2-PENTENE | 0.1 | * | 0.6 | 0.1 | * | * | 0.2 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.5 | * | 0.4 | 4.0 | 5.5 | 2.5 | 0.3 | 3.1 |
| a-PINENE | 5.9 | 10.3 | 0.4 | 11.3 | 0.3 | 10.0 | 0.8 | 5.3 |
| SUM OTHER OLEFINS | 16.1 | 21.5 | 18.7 | 27.6 | 28.1 | 29.6 | 16.7 | 13.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 5.6 | 2.0 | 8.8 | 6.5 | 0.9 | 6.5 | 14.0 | 5.6 |
| TOLUENE | 15.0 | 3.6 | 13.1 | 13.0 | 17.9 | 12.8 | 15.5 | 8.1 |
| ETHYLBENZENE | 2.0 | 1.9 | 2.8 | 3.9 | 0.8 | 3.2 | 5.8 | 1.9 |
| m&p-XYLENE | 7.9 | 2.8 | 8.4 | 9.3 | 2.8 | 6.5 | 18.4 | 4.0 |
| o-XYLENE | 3.4 | * | 2.9 | 3.3 | 1.1 | 2.5 | 6.0 | 4.7 |
| n-PROPYLBENZENE | 0.3 | 0.2 | 0.6 | 0.3 | 0.1 | 0.3 | 0.7 | 0.1 |
| m-ETHYLTOLUENE | 1.9 | 1.1 | 2.4 | 1.6 | 0.7 | 1.6 | 2.1 | 0.8 |
| p-ETHYLTOLUENE | 1.0 | 0.4 | 1.2 | 0.5 | 1.7 | 0.4 | 1.5 | 0.3 |
| 1,3,5-TRIMETHYLBENZENE | 0.9 | 0.6 | 1.0 | 0.6 | 0.3 | 0.9 | 1.2 | 0.5 |
| o-ETHYLTOLUENE | 1.0 | 0.5 | 1.1 | 0.8 | 1.2 | 0.7 | 1.8 | 0.3 |
| 1,2,4-TRIMETHYLBENZENE | 3.5 | 1.6 | 3.6 | 0.6 | * | * | 4.3 | 0.5 |
| n-DECANE | 21.1 | 0.2 | 1.9 | 0.6 | 3.5 | 0.8 | 4.3 | 0.1 |
| 1,4-DIETHYLBENZENE | 0.8 | 0.6 | 1.3 | 0.5 | 0.2 | 0.7 | 1.3 | 0.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.4 | 0.4 | 0.3 | 0.5 | 1.0 | 0.7 | 2.3 | * |
| SUM OTHER AROMATICS | 10.0 | 22.3 | 16.1 | 27.6 | 36.2 | 34.2 | 25.8 | 17.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 6.1 | 8.9 | 5.8 | 6.9 | 13.8 | 10.6 | 3.0 | 9.5 |
| SUM UNKNOWNS | 1.8 | 0.3 | 5.2 | 9.2 | 6.9 | 9.2 | * | 7.1 |
| SUM PARAFFINS | 297.1 | 88.8 | 350.6 | 431.4 | 165.9 | 366.5 | 326.6 | 166.1 |
| SUM OLEFINS | 40.8 | 34.6 | 82.6 | 141.2 | 46.2 | 88.6 | 52.1 | 133.1 |
| SUM AROMATICS | 75.5 | 38.7 | 66.3 | 70.3 | 69.0 | 72.3 | 105.8 | 45.5 |
| SUM HYDROCARBONS | 421.4 | 171.4 | 510.6 | 659.2 | 301.9 | 548.0 | 488.0 | 361.7 |

TABLE A-31d. Hydrocarbon concentration data for ORANGE, TX

| Compound | ID Number and Sample Date | |
|---|---|---|
| | 2431<br>85/09/09 | 2628<br>85/09/26 |
| PARAFFINS | | |
| ETHANE | 83.6 | 11.9 |
| PROPANE | 65.5 | 11.1 |
| ISOBUTANE | 30.2 | 4.2 |
| n-BUTANE | 54.4 | 6.3 |
| ISOPENTANE | 59.8 | 6.2 |
| n-PENTANE | 24.1 | 1.9 |
| 2,2-DIMETHYLBUTANE | 1.8 | 0.0 |
| CYCLOPENTANE | 2.6 | * |
| 2,3-DIMETHYLBUTANE | 4.3 | 0.2 |
| 2-METHYLPENTANE | 18.1 | 1.1 |
| 3-METHYLPENTANE | 12.3 | 2.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 11.2 | 1.3 |
| METHYLCYCLOPENTANE | 7.2 | 0.5 |
| 2,4-DIMETHYLPENTANE | 1.6 | * |
| CYCLOHEXANE | 13.1 | 0.7 |
| 2-METHYLHEXANE | 8.6 | * |
| 2,3-DIMETHYLPENTANE | * | * |
| 3-METHYLHEXANE | 4.5 | 0.7 |
| 2,2,4-TRIMETHYLPENTANE | 5.4 | 0.4 |
| n-HEPTANE | 3.5 | 0.6 |
| METHYLCYCLOHEXANE | 4.2 | 0.4 |
| 2,5-DIMETHYLHEXANE | 1.0 | * |
| 2,4-DIMETHYLHEXANE | 1.0 | 0.0 |
| 2,3,4-TRIMETHYLPENTANE | 2.0 | * |
| 2-METHYLHEPTANE | 1.7 | 0.2 |
| 3-METHYLHEPTANE | 1.4 | 0.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 0.7 |
| n-OCTANE | 1.1 | 1.3 |
| 2,4-DIMETHYLHEPTANE | * | 0.9 |
| 4-METHYLOCTANE | 0.7 | * |
| 3-METHYLOCTANE | 1.3 | 0.6 |
| n-NONANE | 0.7 | 0.4 |
| 4-METHYLNONANE | * | * |
| n-DECANE | 1.8 | 0.5 |
| SUM OTHER PARAFFINS | 51.7 | 27.3 |

| | | |
|---|---|---|
| OLEFINS | | |
| ETHYLENE | 22.2 | 3.3 |
| PROPENE | 4.7 | 0.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.6 | 0.6 |
| 1,3-BUTADIENE | 29.2 | * |
| t-2-BUTENE | 2.8 | * |
| c-2-BUTENE | 1.9 | * |
| 1-PENTENE | 1.5 | * |
| 2-METHYL-1-BUTENE | 2.2 | * |
| ISOPRENE | 0.7 | * |
| t-2-PENTENE | 2.9 | * |
| c-2-PENTENE | 3.1 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * |
| 2-METHYL-2-PENTENE | 0.7 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.2 | 2.7 |
| a-PINENE | 13.1 | 11.7 |
| SUM OTHER OLEFINS | 27.7 | 21.4 |
| AROMATICS | | |
| BENZENE | 11.0 | 1.8 |
| TOLUENE | 24.9 | 3.3 |
| ETHYLBENZENE | 5.4 | 1.8 |
| m&p-XYLENE | 14.3 | 2.4 |
| o-XYLENE | 9.2 | 5.6 |
| n-PROPYLBENZENE | 0.5 | 0.1 |
| m-ETHYLTOLUENE | 3.8 | 0.9 |
| p-ETHYLTOLUENE | 1.1 | 0.4 |
| 1,3,5-TRIMETHYLBENZENE | 1.8 | 0.4 |
| o-ETHYLTOLUENE | 2.0 | 0.3 |
| 1,2,4-TRIMETHYLBENZENE | 9.3 | 1.6 |
| n-DECANE | 1.4 | 0.2 |
| 1,4-DIETHYLBENZENE | 1.3 | 0.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.1 | 0.6 |
| SUM OTHER AROMATICS | 38.8 | 7.2 |
| SUMMARY | | |
| ACETYLENE | 14.8 | 1.3 |
| SUM UNKNOWNS | 9.4 | 7.0 |
| SUM PARAFFINS | 482.6 | 83.4 |
| SUM OLEFINS | 122.3 | 40.4 |
| SUM AROMATICS | 126.4 | 27.7 |
| SUM HYDROCARBONS | 755.6 | 159.9 |

TABLE A-32a. Hydrocarbon concentration data for PHILADELPHIA 1, PA

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1027 85/06/04 | 1029 85/06/03 | 1152 85/06/12 | 1173 86/06/11 | 1290 85/06/24 | 1321 84/07/17 | 1337 86/06/20 | 1425 86/06/25 |
| PARAFFINS | | | | | | | | |
| ETHANE | 10.7 | 29.3 | 17.6 | 21.6 | 31.4 | 12.7 | 16.1 | 6.4 |
| PROPANE | 10.8 | 107.3 | 35.0 | 65.1 | 99.3 | 15.5 | 18.0 | 4.4 |
| ISOBUTANE | 7.7 | 34.4 | 25.7 | 43.6 | 66.8 | 18.0 | 13.0 | 4.1 |
| n-BUTANE | 21.2 | 99.7 | 55.5 | 100.9 | 158.8 | 52.1 | 27.6 | 9.1 |
| ISOPENTANE | 21.9 | 89.1 | 53.0 | 82.7 | 123.0 | 56.3 | 26.5 | 11.2 |
| n-PENTANE | 10.6 | 40.3 | 26.3 | 47.7 | 68.2 | 28.5 | 12.0 | 5.1 |
| 2,2-DIMETHYLBUTANE | 0.6 | 2.2 | 1.2 | 3.7 | 2.5 | 1.7 | 0.7 | 0.2 |
| CYCLOPENTANE | 0.9 | 3.3 | 2.1 | 3.7 | 4.6 | 2.1 | 0.9 | 0.4 |
| 2,3-DIMETHYLBUTANE | 1.7 | 6.3 | 3.0 | 4.7 | 6.6 | 4.4 | 2.0 | 0.8 |
| 2-METHYLPENTANE | 7.9 | 26.0 | 13.9 | 19.3 | 30.0 | 17.9 | 7.1 | 3.8 |
| 3-METHYLPENTANE | 7.4 | 22.6 | 10.1 | 13.5 | 17.0 | 15.0 | 5.9 | 2.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 5.0 | 15.8 | 10.6 | 14.9 | 26.4 | 12.8 | 5.1 | 2.7 |
| METHYLCYCLOPENTANE | 3.0 | 9.5 | 5.8 | 7.1 | 13.0 | 7.2 | 3.2 | 1.6 |
| 2,4-DIMETHYLPENTANE | 0.9 | 2.8 | 1.9 | 1.4 | 2.8 | 2.4 | 1.0 | 0.5 |
| CYCLOHEXANE | 0.6 | 2.3 | 2.0 | 3.0 | 5.7 | 2.4 | 0.7 | 0.2 |
| 2-METHYLHEXANE | 5.0 | 14.7 | 5.9 | 6.7 | 10.8 | 10.0 | 4.1 | 3.6 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 4.9 | 10.9 | 4.5 | 5.1 | 8.2 | 7.3 | 3.0 | 1.8 |
| 2,2,4-TRIMETHYLPENTANE | 3.7 | 12.3 | 5.7 | 4.0 | 8.5 | 9.1 | 3.8 | 2.5 |
| n-HEPTANE | 3.0 | 9.4 | 4.8 | 6.8 | 14.4 | 8.7 | 3.0 | 1.6 |
| METHYLCYCLOHEXANE | 1.3 | 5.2 | 3.5 | 5.9 | 10.3 | 5.2 | 1.8 | 0.7 |
| 2,5-DIMETHYLHEXANE | 0.9 | 16.9 | 1.6 | 0.2 | 2.4 | 2.2 | 0.1 | 0.5 |
| 2,4-DIMETHYLHEXANE | 1.1 | 22.9 | 1.5 | 0.6 | 2.0 | 2.4 | 0.7 | 0.5 |
| 2,3,4-TRIMETHYLPENTANE | 1.4 | 4.8 | 1.5 | 1.3 | 2.2 | 2.6 | 1.4 | 0.9 |
| 2-METHYLHEPTANE | 1.3 | 3.6 | 2.5 | 2.7 | 5.2 | 2.7 | 1.3 | 1.1 |
| 3-METHYLHEPTANE | 1.2 | 3.9 | 1.8 | 1.9 | 3.9 | 2.8 | 1.0 | 0.9 |
| 2,2,5-TRIMETHYLHEXANE | 0.3 | 1.6 | 0.6 | 0.9 | 1.3 | 1.4 | 0.6 | 0.2 |
| n-OCTANE | 1.0 | 3.4 | 2.4 | 3.5 | 8.1 | 2.7 | 1.7 | 1.0 |
| 2,4-DIMETHYLHEPTANE | * | 0.3 | * | 0.6 | 0.3 | * | 0.4 | 0.9 |
| 4-METHYLOCTANE | * | 2.5 | 1.4 | 1.2 | 2.4 | 2.9 | 1.2 | 0.4 |
| 3-METHYLOCTANE | 0.6 | 1.9 | 1.0 | 1.5 | 2.3 | 1.3 | 0.9 | 0.3 |
| n-NONANE | 88.6 | 35.6 | 1.9 | 2.5 | 5.4 | 2.8 | 1.4 | * |
| 4-METHYLNONANE | * | * | * | 2.1 | * | * | * | * |
| n-DECANE | 3.4 | 9.8 | 4.4 | 0.3 | 5.4 | 4.7 | 3.0 | 1.6 |
| SUM OTHER PARAFFINS | 113.6 | 93.3 | 45.3 | 23.1 | 52.5 | 50.0 | 15.5 | 14.2 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 12.8 | 27.0 | 13.0 | 9.9 | 12.2 | 66.3 | 10.4 | 7.9 |
| PROPENE | 4.6 | 18.4 | 7.6 | 11.1 | 16.6 | 7.2 | 4.5 | 2.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 4.3 | 11.6 | 6.5 | 6.1 | * | 6.9 | 4.4 | 2.5 |
| 1,3-BUTADIENE | 0.9 | 2.0 | 0.8 | 0.4 | 1.0 | 1.3 | 0.3 | 0.5 |
| t-2-BUTENE | 1.6 | 4.9 | 3.3 | 2.6 | 11.5 | 3.0 | 0.9 | 0.8 |
| c-2-BUTENE | 1.1 | 3.7 | 2.4 | 2.0 | 9.6 | 2.2 | 0.7 | 0.6 |
| 1-PENTENE | * | 4.2 | 1.5 | 1.3 | 4.6 | 1.7 | * | 0.4 |
| 2-METHYL-1-BUTENE | 1.3 | 4.3 | 5.1 | 2.0 | 6.8 | 2.8 | 0.8 | 0.7 |
| ISOPRENE | 0.6 | 1.8 | 0.6 | 0.2 | 0.9 | 3.1 | * | 0.2 |
| t-2-PENTENE | 1.5 | 4.4 | 2.7 | 1.8 | 6.7 | 3.4 | 0.7 | 1.2 |
| c-2-PENTENE | 1.3 | 3.3 | 0.1 | * | 6.6 | 2.4 | 1.3 | 1.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.3 | 1.3 | * | * | 1.5 | 0.8 | * | * |
| 2-METHYL-2-PENTENE | 1.3 | 2.0 | 0.8 | 0.3 | 1.3 | 2.3 | 0.0 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.3 | 1.6 | 1.9 | 1.1 | 1.4 | 3.4 | 1.4 | 0.8 |
| a-PINENE | 18.0 | 3.8 | 2.0 | * | 3.7 | 1.7 | 0.7 | 1.3 |
| SUM OTHER OLEFINS | 47.3 | 52.0 | 32.9 | 8.3 | 37.4 | 59.6 | 7.1 | 16.1 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 8.7 | 26.5 | 10.1 | 7.5 | 14.4 | 15.2 | 7.9 | 5.5 |
| TOLUENE | 28.2 | 72.6 | 30.2 | 17.4 | 32.9 | 52.0 | 23.3 | 14.6 |
| ETHYLBENZENE | 4.1 | 10.4 | 4.8 | 2.8 | 4.6 | 6.6 | 3.0 | 3.2 |
| m&p-XYLENE | 15.1 | 35.9 | 17.2 | 9.7 | 17.8 | 22.8 | 11.4 | 7.9 |
| o-XYLENE | 6.6 | 14.2 | 7.0 | 4.5 | 6.0 | 7.8 | 5.3 | 7.2 |
| n-PROPYLBENZENE | 2.2 | 3.5 | 1.7 | 0.5 | 1.4 | 2.2 | 0.8 | 0.6 |
| m-ETHYLTOLUENE | 21.2 | 11.4 | 4.4 | 2.4 | 5.3 | 6.8 | 3.5 | 2.1 |
| p-ETHYLTOLUENE | 3.2 | 5.5 | 3.4 | 1.5 | 2.7 | 4.2 | 2.0 | 1.5 |
| 1,3,5-TRIMETHYLBENZENE | 2.8 | 7.7 | 2.9 | * | 3.2 | 3.8 | 2.5 | 1.7 |
| o-ETHYLTOLUENE | 5.2 | 6.2 | 2.5 | 1.4 | 2.8 | 3.7 | 1.8 | 1.3 |
| 1,2,4-TRIMETHYLBENZENE | 7.0 | 14.7 | 6.9 | 6.7 | 7.9 | 10.5 | 9.1 | 4.4 |
| n-DECANE | 700.7 | * | 51.3 | * | * | 6.0 | 1.3 | 1.5 |
| 1,4-DIETHYLBENZENE | 0.9 | 6.2 | 1.5 | * | 2.5 | 3.8 | 1.3 | 1.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.6 | 6.8 | 3.1 | 1.9 | 3.8 | 3.8 | * | 0.8 |
| SUM OTHER AROMATICS | 134.9 | 315.3 | 39.9 | 12.0 | 196.1 | 49.9 | 23.7 | 10.9 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 11.2 | 28.9 | 10.2 | 3.6 | 8.5 | 18.3 | 9.7 | 5.4 |
| SUM UNKNOWNS | 17.1 | 90.6 | 5.7 | 5.2 | 10.0 | 14.3 | 3.4 | 3.2 |
| SUM PARAFFINS | 343.5 | 745.4 | 355.9 | 505.2 | 803.0 | 369.0 | 186.0 | 87.4 |
| SUM OLEFINS | 98.8 | 146.9 | 81.9 | 47.6 | 122.4 | 168.8 | 33.6 | 37.3 |
| SUM AROMATICS | 945.0 | 537.7 | 187.5 | 68.9 | 301.9 | 199.6 | 97.5 | 65.4 |
| SUM HYDROCARBONS | 1416.2 | 1549.6 | 641.5 | 630.7 | 1246.3 | 770.9 | 330.4 | 198.7 |

TABLE A-32b. Hydrocarbon concentration data for PHILADELPHIA 1, PA

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1429 85/07/02 | 1432 86/06/26 | 1459 84/07/27 | 1473 86/06/27 | 1477 86/06/30 | 1495 85/07/09 | 1621 84/08/03 | 1630 85/07/16 |
| PARAFFINS | | | | | | | | |
| ETHANE | 11.3 | 16.6 | 10.3 | 34.8 | 6.8 | 19.1 | 16.8 | 26.2 |
| PROPANE | 14.4 | 23.6 | 12.7 | 80.9 | 6.1 | 26.4 | 13.1 | 68.9 |
| ISOBUTANE | 10.1 | 19.9 | 14.9 | 39.4 | 4.6 | 15.1 | 21.5 | 48.7 |
| n-BUTANE | 28.9 | 42.9 | 40.3 | 117.8 | 11.2 | 39.2 | 56.4 | 107.5 |
| ISOPENTANE | 30.1 | 47.0 | 50.3 | 70.9 | 14.8 | 44.4 | 64.3 | 94.3 |
| n-PENTANE | 15.0 | 20.1 | 26.7 | 40.7 | 5.6 | 21.1 | 30.3 | 36.7 |
| 2,2-DIMETHYLBUTANE | 0.9 | 1.4 | 1.6 | 2.6 | 0.3 | 1.5 | 4.0 | 2.1 |
| CYCLOPENTANE | 1.2 | 1.7 | 2.2 | 3.3 | 0.5 | 1.9 | 2.3 | 2.8 |
| 2,3-DIMETHYLBUTANE | 2.4 | 3.8 | 4.2 | 4.7 | 1.0 | 3.8 | 4.5 | 6.2 |
| 2-METHYLPENTANE | 9.8 | 17.1 | 18.1 | 20.6 | 3.9 | 14.4 | 19.7 | 24.2 |
| 3-METHYLPENTANE | 6.1 | 16.3 | 14.9 | 14.3 | 3.9 | 11.8 | 17.3 | 14.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.8 | 9.5 | 13.1 | 19.3 | 2.5 | 10.3 | 11.8 | 16.9 |
| METHYLCYCLOPENTANE | 4.2 | 6.3 | 7.6 | 9.8 | 1.7 | 6.4 | 6.8 | 9.7 |
| 2,4-DIMETHYLPENTANE | 1.2 | 2.2 | 2.6 | 2.0 | 0.6 | 1.9 | 2.2 | 2.9 |
| CYCLOHEXANE | 0.8 | 1.4 | 2.1 | 4.9 | 0.2 | 2.1 | 1.5 | 3.8 |
| 2-METHYLHEXANE | 6.8 | 13.3 | 10.2 | 10.1 | 2.5 | 7.5 | 9.9 | 15.4 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 3.8 | 6.4 | 11.4 | 8.0 | 1.6 | 5.6 | 9.3 | 9.6 |
| 2,2,4-TRIMETHYLPENTANE | 5.2 | 6.9 | 8.2 | 5.1 | 2.7 | 8.1 | 7.4 | 9.6 |
| n-HEPTANE | 2.8 | 5.0 | 6.2 | 11.8 | 1.8 | 5.3 | 5.7 | 11.4 |
| METHYLCYCLOHEXANE | 2.6 | 3.3 | 4.5 | 8.6 | 0.7 | 3.7 | 2.5 | 7.6 |
| 2,5-DIMETHYLHEXANE | 1.1 | 1.8 | 2.1 | 2.3 | * | 1.8 | 1.7 | 2.6 |
| 2,4-DIMETHYLHEXANE | 1.1 | 2.0 | 2.3 | 1.5 | 0.5 | 1.8 | 2.1 | 2.3 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 3.3 | 2.9 | 1.9 | 1.0 | 2.6 | 3.0 | 3.2 |
| 2-METHYLHEPTANE | 1.6 | 2.7 | 3.2 | 4.1 | 0.7 | 2.3 | 5.9 | 4.3 |
| 3-METHYLHEPTANE | 1.9 | 2.8 | 3.4 | 2.6 | 0.7 | 2.4 | 2.7 | 4.1 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 1.0 | 2.0 | 1.2 | 1.4 | 3.4 | 1.3 | 2.0 |
| n-OCTANE | 1.4 | 3.5 | 3.8 | 5.0 | 0.9 | 2.2 | 2.0 | 6.6 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.2 | 0.8 | 0.8 | * | * | * |
| 4-METHYLOCTANE | 1.2 | 2.0 | 2.5 | 2.5 | 0.8 | 1.7 | 2.5 | 2.7 |
| 3-METHYLOCTANE | 1.1 | 2.2 | 1.5 | 1.7 | 0.7 | 1.5 | 1.0 | 2.5 |
| n-NONANE | 1.5 | 1.9 | 4.0 | 3.3 | 0.9 | 1.9 | 2.8 | 4.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.0 | 7.8 | 5.6 | 4.7 | 1.9 | 4.8 | 4.4 | 5.8 |
| SUM OTHER PARAFFINS | 27.9 | 27.2 | 46.9 | 32.2 | 8.8 | 28.4 | 51.5 | 49.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 17.5 | 26.2 | 46.6 | 11.1 | 8.6 | 21.5 | 87.1 | 19.2 |
| PROPENE | 6.2 | 8.7 | 8.5 | 41.6 | 2.6 | 9.1 | 6.8 | 24.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 5.5 | 9.4 | 6.8 | 6.4 | 2.8 | 6.6 | 6.5 | 0.2 |
| 1,3-BUTADIENE | 1.2 | 1.5 | 1.5 | 0.6 | 0.4 | 1.6 | 1.0 | 0.7 |
| t-2-BUTENE | 2.2 | 3.9 | 2.8 | 3.4 | 0.8 | 2.4 | 3.2 | 9.1 |
| c-2-BUTENE | 1.6 | 3.0 | 2.1 | 2.7 | 0.7 | 1.7 | 3.2 | 8.4 |
| 1-PENTENE | 1.2 | 1.8 | 1.9 | 1.6 | * | 5.8 | 4.0 | 6.4 |
| 2-METHYL-1-BUTENE | 1.8 | 5.8 | 3.1 | 2.3 | 0.5 | 2.3 | 3.4 | 6.4 |
| ISOPRENE | 0.7 | 1.5 | 1.3 | * | 0.4 | 1.7 | 1.3 | 1.0 |
| t-2-PENTENE | 2.4 | 3.5 | 3.5 | 2.1 | 0.4 | 2.3 | 3.8 | 6.2 |
| c-2-PENTENE | 1.2 | 4.8 | 3.2 | 2.5 | 0.9 | 2.1 | 4.6 | 4.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.9 | * | 1.7 | 0.4 | 0.1 | 0.8 | 1.7 | 1.9 |
| 2-METHYL-2-PENTENE | 0.6 | 1.2 | 1.7 | 0.6 | * | 0.6 | 2.0 | 1.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.1 | 2.3 | 7.7 | 0.8 | 0.8 | 1.8 | 1.6 | 1.7 |
| a-PINENE | 1.9 | 6.0 | 1.5 | 0.0 | * | 3.5 | 1.5 | 2.6 |
| SUM OTHER OLEFINS | 24.5 | 25.0 | 50.1 | 11.0 | 2.4 | 30.8 | 48.5 | 41.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 10.8 | 17.9 | 15.5 | 11.5 | 5.2 | 15.5 | 15.1 | 18.0 |
| TOLUENE | 38.8 | 65.8 | 57.7 | 24.8 | 16.3 | 46.8 | 39.4 | 44.2 |
| ETHYLBENZENE | 5.0 | 8.3 | 8.2 | 3.9 | 2.7 | 6.3 | 6.0 | 6.6 |
| m&p-XYLENE | 18.8 | 28.1 | 29.2 | 13.9 | 8.5 | 23.0 | 21.1 | 23.1 |
| o-XYLENE | 7.1 | 11.2 | 9.7 | 6.6 | 4.4 | 8.3 | 7.2 | 8.8 |
| n-PROPYLBENZENE | 1.4 | 2.1 | 2.7 | 1.0 | 0.5 | 1.9 | 2.7 | 1.8 |
| m-ETHYLTOLUENE | 4.6 | 7.9 | 8.4 | 3.5 | 2.4 | 6.5 | 6.7 | 5.7 |
| p-ETHYLTOLUENE | 2.2 | 4.3 | 4.9 | 2.1 | 1.4 | 3.5 | 3.8 | 3.5 |
| 1,3,5-TRIMETHYLBENZENE | 2.7 | 5.3 | 5.1 | 3.1 | 2.3 | 3.9 | 3.8 | 3.9 |
| o-ETHYLTOLUENE | 3.0 | 4.1 | 4.4 | 2.1 | 1.2 | 3.0 | 3.5 | 3.1 |
| 1,2,4-TRIMETHYLBENZENE | 8.4 | 14.0 | 13.8 | 9.5 | 6.7 | 11.2 | 10.6 | 10.0 |
| n-DECANE | 2.0 | 3.4 | 5.4 | 1.8 | 1.2 | 15.5 | 5.0 | 14.4 |
| 1,4-DIETHYLBENZENE | 2.3 | 4.6 | 4.2 | 1.9 | 1.4 | 3.2 | 2.9 | 2.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.5 | 4.1 | 3.9 | * | * | 3.0 | 2.9 | 3.4 |
| SUM OTHER AROMATICS | 49.4 | 57.3 | 49.3 | 29.0 | 19.0 | 44.4 | 44.2 | 37.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 16.5 | 14.8 | 19.9 | 7.9 | 5.2 | 18.4 | 14.2 | 14.5 |
| SUM UNKNOWNS | 16.7 | 3.8 | 3.0 | 1.9 | 1.1 | 13.4 | * | 4.1 |
| SUM PARAFFINS | 209.7 | 324.4 | 344.0 | 574.8 | 93.5 | 305.9 | 389.4 | 611.0 |
| SUM OLEFINS | 74.2 | 105.3 | 144.6 | 88.0 | 21.8 | 95.3 | 181.0 | 136.8 |
| SUM AROMATICS | 158.5 | 238.8 | 223.0 | 115.2 | 73.6 | 196.6 | 175.8 | 187.4 |
| SUM HYDROCARBONS | 475.7 | 687.2 | 734.7 | 788.0 | 195.3 | 629.7 | 760.8 | 954.0 |

TABLE A-32c. Hydrocarbon concentration data for PHILADELPHIA 1, PA

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1664<br>84/08/07 | 1718<br>86/07/15 | 1802<br>85/07/23 | 1825<br>86/07/21 | 1831<br>85/07/30 | 1970<br>86/07/29 | 2025<br>85/08/09 | 2026<br>85/08/09 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 11.5 | 5.2 | 5.6 | 14.1 | 20.9 | 29.5 | 25.7 | 26.5 |
| PROPANE | 8.9 | 3.6 | 4.6 | 15.5 | 182.1 | 65.7 | 37.6 | 48.1 |
| ISOBUTANE | 12.6 | 2.7 | 4.2 | 15.0 | 35.1 | 40.7 | 35.4 | 45.2 |
| n-BUTANE | 31.8 | 5.9 | 12.8 | 24.7 | 82.1 | 102.6 | 73.0 | 107.3 |
| ISOPENTANE | 34.5 | 5.5 | 15.6 | 24.8 | 66.1 | 80.9 | 89.5 | 104.6 |
| n-PENTANE | 16.8 | 2.6 | 6.8 | 11.6 | 33.3 | 46.2 | 40.2 | 46.5 |
| 2,2-DIMETHYLBUTANE | 0.9 | 0.2 | 0.3 | 0.2 | 1.4 | 2.5 | 2.7 | 3.2 |
| CYCLOPENTANE | 1.2 | * | 0.6 | 0.8 | 2.9 | 3.7 | 3.6 | 4.0 |
| 2,3-DIMETHYLBUTANE | 2.6 | 0.5 | 1.2 | 2.0 | 4.4 | 5.5 | 7.1 | 7.5 |
| 2-METHYLPENTANE | 13.0 | 2.4 | 5.4 | 6.3 | 18.5 | 20.5 | 29.1 | 31.1 |
| 3-METHYLPENTANE | 15.9 | 3.0 | 4.1 | 5.5 | 21.2 | 14.5 | 15.7 | 24.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 16.9 | 2.5 | 4.0 | 4.7 | 13.9 | 14.5 | 17.5 | 18.5 |
| METHYLCYCLOPENTANE | 8.2 | 1.1 | 2.4 | 2.9 | 7.2 | 9.1 | 11.0 | 12.2 |
| 2,4-DIMETHYLPENTANE | 1.5 | * | 0.7 | 0.8 | 2.1 | 2.2 | 3.9 | 3.8 |
| CYCLOHEXANE | 1.3 | * | 0.4 | 0.6 | 2.5 | 3.6 | 2.6 | 3.1 |
| 2-METHYLHEXANE | 6.1 | 1.3 | 2.9 | 5.4 | 12.9 | 10.2 | 18.1 | 18.5 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 6.2 | 1.2 | 2.4 | 3.2 | 6.9 | 7.6 | 10.6 | 12.3 |
| 2,2,4-TRIMETHYLPENTANE | 4.5 | 1.1 | 2.7 | 3.1 | 7.0 | 7.4 | 15.1 | 12.8 |
| n-HEPTANE | 3.7 | 0.9 | 2.0 | 2.3 | 8.6 | 9.0 | 8.6 | 10.2 |
| METHYLCYCLOHEXANE | 2.4 | 0.4 | 1.7 | 1.4 | 5.2 | 6.9 | 4.9 | 6.6 |
| 2,5-DIMETHYLHEXANE | 1.3 | * | 0.6 | 0.5 | 1.8 | 1.1 | 3.1 | 2.8 |
| 2,4-DIMETHYLHEXANE | 1.9 | * | 0.6 | 0.6 | 1.6 | 1.8 | 3.4 | 2.6 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 0.3 | 1.0 | 1.1 | 2.9 | 2.4 | 5.1 | 4.0 |
| 2-METHYLHEPTANE | 1.1 | * | 0.6 | 2.3 | 2.9 | 4.1 | 4.4 | 4.3 |
| 3-METHYLHEPTANE | 1.5 | 0.4 | 1.1 | 1.2 | 2.8 | 2.8 | 4.9 | 5.0 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.6 | 0.3 | 3.4 | 0.9 | 1.4 | 2.0 | 1.5 |
| n-OCTANE | 1.6 | 0.7 | 1.0 | 1.7 | 4.2 | 4.4 | 3.7 | 4.5 |
| 2,4-DIMETHYLHEPTANE | * | 0.4 | * | 1.2 | * | 1.6 | 0.8 | * |
| 4-METHYLOCTANE | 0.5 | * | 0.5 | 1.3 | 2.0 | 2.6 | 3.4 | 3.4 |
| 3-METHYLOCTANE | * | 0.5 | 0.7 | 1.1 | 1.8 | 1.7 | 2.5 | 2.8 |
| n-NONANE | 6.7 | 0.5 | 1.0 | 1.5 | 3.1 | 3.3 | 4.8 | 4.4 |
| 4-METHYLNONANE | * | 0.8 | * | * | * | 1.4 | * | * |
| n-DECANE | 3.2 | 1.7 | 2.0 | 5.8 | 4.9 | 7.7 | 11.9 | 9.0 |
| SUM OTHER PARAFFINS | 35.0 | 15.4 | 12.9 | 35.5 | 31.4 | 43.0 | 49.8 | 50.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 54.3 | 4.4 | 8.1 | 10.6 | 22.7 | 14.9 | 41.0 | 33.2 |
| PROPENE | 4.2 | 0.8 | 2.5 | 3.4 | 13.3 | 16.7 | 14.8 | 17.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.2 | 0.8 | 2.4 | 2.8 | 8.8 | 7.4 | 11.9 | 0.6 |
| 1,3-BUTADIENE | 0.8 | * | 0.5 | * | 0.6 | 0.1 | 2.3 | 1.4 |
| t-2-BUTENE | 1.7 | 0.1 | 0.9 | 0.5 | 4.7 | 2.1 | 5.3 | 6.6 |
| c-2-BUTENE | 1.5 | 0.2 | 0.7 | 0.7 | 4.1 | 2.0 | 4.1 | 5.1 |
| 1-PENTENE | 1.2 | * | 0.6 | 0.3 | 2.4 | 1.8 | 3.8 | 4.4 |
| 2-METHYL-1-BUTENE | 1.7 | * | 1.0 | 0.9 | 3.5 | 1.9 | 7.2 | 10.8 |
| ISOPRENE | 4.1 | 0.6 | 0.8 | 1.3 | 1.2 | 0.2 | 2.8 | 2.1 |
| t-2-PENTENE | 2.0 | * | 1.1 | 0.5 | 4.0 | 1.2 | 5.7 | 5.6 |
| c-2-PENTENE | 2.0 | * | 1.5 | 0.8 | 5.4 | 1.9 | 9.1 | 4.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 1.2 | * | * | * | 0.4 | * | 1.1 | 1.7 |
| 2-METHYL-2-PENTENE | 0.9 | * | 0.3 | * | 1.0 | 0.5 | 3.1 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.9 | 1.0 | 0.8 | 1.3 | 1.7 | 2.0 | 2.6 | 5.6 |
| a-PINENE | 0.9 | 0.6 | 0.7 | 2.7 | 1.4 | 2.3 | 2.3 | 2.6 |
| SUM OTHER OLEFINS | 52.6 | 2.3 | 12.0 | 8.2 | 19.1 | 11.8 | 33.9 | 29.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 8.5 | 2.3 | 6.3 | 6.0 | 16.3 | 14.1 | 30.9 | 26.6 |
| TOLUENE | 30.6 | 14.5 | 20.1 | 22.8 | 38.0 | 37.9 | 81.4 | 78.3 |
| ETHYLBENZENE | 3.7 | 1.0 | 2.3 | 3.3 | 5.4 | 5.8 | 11.5 | 10.7 |
| m&p-XYLENE | 12.8 | 4.1 | 8.7 | 10.6 | 20.4 | 20.2 | 41.2 | 37.1 |
| o-XYLENE | 4.4 | 2.8 | 4.5 | 5.7 | 7.5 | 8.2 | 15.8 | 15.4 |
| n-PROPYLBENZENE | 1.4 | 0.2 | 0.7 | 0.8 | 1.5 | 1.6 | 3.8 | 3.1 |
| m-ETHYLTOLUENE | 3.8 | 1.0 | 2.5 | 2.6 | 5.6 | 5.1 | 12.0 | 10.0 |
| p-ETHYLTOLUENE | 2.8 | 0.5 | 1.3 | 1.5 | 3.0 | 3.1 | 6.3 | 5.4 |
| 1,3,5-TRIMETHYLBENZENE | 2.4 | * | 1.9 | 2.2 | 3.8 | 2.9 | 7.7 | 6.1 |
| o-ETHYLTOLUENE | 2.3 | 0.9 | 1.2 | 1.6 | 3.0 | 2.9 | 5.9 | 5.3 |
| 1,2,4-TRIMETHYLBENZENE | 6.1 | 4.4 | 5.5 | 8.4 | 10.7 | 11.4 | 22.5 | 17.8 |
| n-DECANE | 4.0 | * | 1.2 | 1.7 | 2.9 | 2.7 | 5.6 | 5.5 |
| 1,4-DIETHYLBENZENE | 2.0 | * | 1.1 | 1.6 | 2.6 | 1.9 | 4.8 | 4.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.7 | * | 1.1 | 3.5 | 2.9 | 4.1 | 5.1 | 4.8 |
| SUM OTHER AROMATICS | 35.8 | 4.0 | 20.4 | 26.7 | 26.8 | 33.6 | 58.9 | 58.6 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 9.1 | 2.5 | 7.1 | 5.5 | 10.6 | 10.9 | 36.3 | 27.5 |
| SUM UNKNOWNS | 0.2 | 1.5 | 3.0 | 14.8 | 3.9 | 3.1 | 4.7 | 5.1 |
| SUM PARAFFINS | 257.3 | 63.7 | 104.1 | 203.7 | 596.0 | 563.8 | 553.0 | 642.3 |
| SUM OLEFINS | 135.8 | 11.1 | 34.7 | 34.6 | 95.0 | 67.4 | 151.7 | 132.6 |
| SUM AROMATICS | 123.9 | 36.1 | 79.4 | 99.9 | 151.0 | 156.2 | 314.0 | 289.3 |
| SUM HYDROCARBONS | 526.9 | 115.1 | 228.5 | 359.4 | 856.7 | 802.8 | 1060.3 | 1097.0 |

TABLE A-32d. Hydrocarbon concentration data for PHILADELPHIA 1, PA

| Compound | ID Number and Sample Date<br>2061<br>85/08/13 | 2069<br>86/08/04 | 2217<br>85/08/22 | 2240<br>86/08/13 | 2272<br>84/09/14 | 2353<br>86/08/19 | 2368<br>84/09/20 | 2370<br>86/08/20 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 19.1 | 13.4 | 5.7 | 9.0 | 14.1 | 9.0 | 39.6 | 5.7 |
| PROPANE | 29.4 | 12.5 | 11.7 | 11.9 | 132.1 | 10.0 | 231.1 | 6.8 |
| ISOBUTANE | 22.2 | 8.7 | 6.7 | 7.7 | 25.7 | 10.7 | 54.6 | 5.0 |
| n-BUTANE | 58.8 | 18.1 | 17.7 | 18.0 | 63.3 | 24.9 | 122.7 | 11.1 |
| ISOPENTANE | 66.9 | 19.6 | 22.4 | 21.4 | 55.4 | 29.7 | 118.8 | 6.9 |
| n-PENTANE | 31.3 | 6.4 | 10.1 | 8.7 | 27.0 | 11.3 | 109.5 | 3.1 |
| 2,2-DIMETHYLBUTANE | 2.2 | 0.4 | 0.6 | 0.5 | 1.3 | 0.6 | 3.5 | 0.2 |
| CYCLOPENTANE | 3.0 | 0.6 | 0.9 | 0.9 | 2.2 | 1.2 | 6.6 | * |
| 2,3-DIMETHYLBUTANE | 5.4 | 1.3 | 1.8 | 1.5 | 4.1 | 2.2 | 9.5 | 0.6 |
| 2-METHYLPENTANE | 22.4 | 5.3 | 7.6 | 6.1 | 17.9 | 8.7 | 38.7 | 2.4 |
| 3-METHYLPENTANE | 18.5 | 4.8 | 4.8 | 4.3 | 15.4 | 6.6 | 30.2 | 2.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 14.9 | 3.5 | 5.2 | 4.2 | 14.0 | 5.1 | 31.7 | 1.8 |
| METHYLCYCLOPENTANE | 8.7 | 2.5 | 3.0 | 2.5 | 7.4 | 3.6 | 16.7 | 0.9 |
| 2,4-DIMETHYLPENTANE | 2.9 | 0.7 | 1.1 | 0.8 | 2.1 | 1.2 | 4.6 | * |
| CYCLOHEXANE | 2.0 | 0.3 | 0.7 | 0.5 | 2.3 | 0.6 | 7.2 | * |
| 2-METHYLHEXANE | 14.9 | 2.4 | 6.4 | 3.7 | 8.5 | 4.5 | 22.7 | * |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | 1.1 |
| 3-METHYLHEXANE | 9.1 | 1.9 | 3.6 | 2.7 | 7.0 | 3.1 | 17.1 | 0.8 |
| 2,2,4-TRIMETHYLPENTANE | 11.0 | 2.8 | 4.5 | 3.0 | 8.1 | 4.6 | 17.5 | 1.0 |
| n-HEPTANE | 6.9 | 1.1 | 2.3 | 2.0 | 7.8 | 2.8 | 21.2 | 0.6 |
| METHYLCYCLOHEXANE | 4.2 | 1.0 | 1.7 | 1.5 | 5.9 | 1.6 | 9.6 | 0.4 |
| 2,5-DIMETHYLHEXANE | 2.3 | 0.0 | 1.0 | * | 2.2 | 0.5 | 4.2 | * |
| 2,4-DIMETHYLHEXANE | 2.4 | 0.5 | 1.0 | 0.3 | 2.1 | 0.9 | 4.5 | * |
| 2,3,4-TRIMETHYLPENTANE | 3.7 | 1.0 | 1.6 | 1.0 | 2.1 | 1.6 | 5.9 | 0.3 |
| 2-METHYLHEPTANE | 3.3 | 0.5 | 0.8 | * | 3.2 | 1.6 | 8.1 | 0.4 |
| 3-METHYLHEPTANE | 4.0 | 0.7 | 1.6 | 1.0 | 2.9 | 1.2 | 7.0 | 0.3 |
| 2,2,5-TRIMETHYLHEXANE | 1.2 | 0.4 | 0.5 | 0.1 | 1.0 | 0.8 | 3.2 | 1.2 |
| n-OCTANE | 3.4 | 1.0 | 3.9 | 1.9 | 4.4 | 1.4 | 12.1 | 1.0 |
| 2,4-DIMETHYLHEPTANE | 0.6 | 1.0 | * | 1.2 | 0.2 | 2.0 | 0.8 | 0.3 |
| 4-METHYLOCTANE | 2.9 | 1.0 | 1.1 | 1.3 | 1.6 | 1.4 | 7.2 | 0.2 |
| 3-METHYLOCTANE | 2.1 | 0.7 | 1.0 | 0.9 | 1.4 | 1.0 | 4.3 | 0.4 |
| n-NONANE | 4.1 | 0.9 | 1.3 | 1.4 | 3.5 | 1.4 | 10.3 | 0.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 9.6 | 2.6 | 2.0 | 3.4 | 5.1 | 4.1 | 13.0 | 1.4 |
| SUM OTHER PARAFFINS | 51.1 | 13.6 | 13.5 | 16.8 | 38.6 | 24.1 | 134.9 | 14.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 30.2 | 9.7 | 11.5 | 9.9 | 63.4 | 13.4 | 119.0 | 3.5 |
| PROPENE | 11.9 | 2.5 | 4.7 | 2.2 | 12.0 | 5.1 | 26.1 | 0.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.3 | 2.4 | 3.8 | 2.6 | 8.5 | 3.4 | 18.6 | 1.0 |
| 1,3-BUTADIENE | 2.3 | 0.1 | 0.5 | * | 0.7 | * | 3.2 | * |
| t-2-BUTENE | 5.0 | 0.5 | 1.4 | 0.7 | 3.6 | 0.8 | 7.9 | 0.2 |
| c-2-BUTENE | 3.6 | 0.5 | 1.1 | 0.7 | 3.2 | 0.8 | 5.8 | 0.2 |
| 1-PENTENE | 2.9 | 0.2 | 0.9 | * | 2.5 | 0.5 | 14.2 | * |
| 2-METHYL-1-BUTENE | 5.3 | 0.4 | 1.5 | 0.9 | 3.4 | 0.4 | 6.6 | 0.1 |
| ISOPRENE | 2.7 | 0.3 | 0.8 | 0.2 | 1.1 | 0.9 | 1.9 | 0.6 |
| t-2-PENTENE | 4.5 | 0.2 | 1.6 | 0.9 | 4.0 | 0.5 | 10.3 | 1.8 |
| c-2-PENTENE | 0.2 | 0.8 | 2.4 | * | 5.7 | 0.8 | 6.7 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.4 | 0.1 | 0.5 | * | 1.0 | 0.7 | * | * |
| 2-METHYL-2-PENTENE | 3.5 | 0.0 | 0.6 | * | 1.4 | * | 3.1 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 4.3 | 1.1 | 2.3 | 2.1 | 1.7 | 1.8 | 54.4 | 1.4 |
| a-PINENE | 1.4 | 0.6 | 0.4 | * | 1.0 | 1.7 | 1.7 | * |
| SUM OTHER OLEFINS | 28.2 | 5.8 | 10.5 | 42.6 | 35.2 | 5.1 | 82.4 | 4.7 |
| AROMATICS | | | | | | | | |
| BENZENE | 21.3 | 6.3 | 10.4 | 5.9 | 11.8 | 8.2 | 27.8 | 2.5 |
| TOLUENE | 76.6 | 20.0 | 28.0 | 39.9 | 37.1 | 30.7 | 103.4 | 8.4 |
| ETHYLBENZENE | 9.5 | 2.8 | 3.8 | 3.4 | 5.1 | 3.9 | 13.5 | 1.0 |
| m&p-XYLENE | 33.7 | 10.5 | 15.9 | 12.3 | 18.7 | 14.4 | 47.5 | 3.7 |
| o-XYLENE | 12.4 | 4.6 | 6.1 | 4.7 | 6.7 | 5.6 | 17.5 | 2.3 |
| n-PROPYLBENZENE | 2.6 | 0.5 | 0.9 | 0.7 | 2.0 | 1.1 | 5.7 | 0.1 |
| m-ETHYLTOLUENE | 9.2 | 2.8 | 3.4 | 3.0 | 5.7 | 4.0 | 15.9 | 1.0 |
| p-ETHYLTOLUENE | 4.8 | 1.5 | 1.1 | 1.8 | 3.2 | 2.1 | 8.2 | 0.5 |
| 1,3,5-TRIMETHYLBENZENE | 6.2 | 2.0 | 2.8 | 2.2 | 3.9 | 2.9 | 9.6 | 0.9 |
| o-ETHYLTOLUENE | 5.1 | 1.4 | 2.1 | 2.0 | 3.3 | 2.3 | 8.8 | 0.7 |
| 1,2,4-TRIMETHYLBENZENE | 20.0 | 5.7 | 3.9 | 6.7 | 10.1 | 8.9 | 22.9 | 3.0 |
| n-DECANE | 3.3 | 0.8 | 1.3 | 0.9 | 3.7 | 1.2 | 9.9 | 0.3 |
| 1,4-DIETHYLBENZENE | 3.8 | 1.3 | 1.7 | 1.0 | 2.9 | 1.5 | 7.0 | 0.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.3 | 1.5 | 1.4 | 1.8 | 4.4 | 2.5 | 10.3 | 1.1 |
| SUM OTHER AROMATICS | 45.3 | 23.3 | 22.2 | 25.8 | 38.9 | 23.2 | 96.1 | 4.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 27.1 | 6.6 | 9.7 | 6.2 | 10.7 | 8.8 | 32.1 | 2.9 |
| SUM UNKNOWNS | 6.0 | 1.6 | 9.7 | 4.7 | 1.2 | 2.2 | 7.4 | 0.8 |
| SUM PARAFFINS | 446.1 | 132.6 | 149.1 | 141.7 | 491.3 | 185.3 | 1130.0 | 72.3 |
| SUM OLEFINS | 117.3 | 25.9 | 45.2 | 63.1 | 149.1 | 36.8 | 362.5 | 14.7 |
| SUM AROMATICS | 258.8 | 85.5 | 105.8 | 112.6 | 158.3 | 113.1 | 404.6 | 30.7 |
| SUM HYDROCARBONS | 855.4 | 253.4 | 319.6 | 328.5 | 810.9 | 347.1 | 1940.1 | 121.6 |

TABLE A-32e. Hydrocarbon concentration data for PHILADELPHIA 1, PA

| Compound | ID Number and Sample Date | | |
|---|---|---|---|
| | 2397<br>86/08/21 | 2453<br>86/08/25 | 2496<br>84/09/27 |
| PARAFFINS | | | |
| ETHANE | 6.2 | 6.3 | 8.7 |
| PROPANE | 12.7 | 4.1 | 9.4 |
| ISOBUTANE | 3.7 | 2.5 | 8.0 |
| n-BUTANE | 8.7 | 6.0 | 22.9 |
| ISOPENTANE | 8.8 | 5.1 | 30.3 |
| n-PENTANE | 1.4 | 1.6 | 15.1 |
| 2,2-DIMETHYLBUTANE | 0.2 | 0.1 | 0.9 |
| CYCLOPENTANE | 0.2 | * | 1.3 |
| 2,3-DIMETHYLBUTANE | 0.7 | 0.5 | 2.7 |
| 2-METHYLPENTANE | 2.8 | 2.0 | 11.8 |
| 3-METHYLPENTANE | 4.3 | 1.0 | 8.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 2.3 | 1.3 | 9.2 |
| METHYLCYCLOPENTANE | 1.2 | 0.7 | 4.9 |
| 2,4-DIMETHYLPENTANE | 0.3 | 1.1 | 1.4 |
| CYCLOHEXANE | 0.2 | * | 1.1 |
| 2-METHYLHEXANE | * | * | 6.9 |
| 2,3-DIMETHYLPENTANE | 2.0 | 1.1 | * |
| 3-METHYLHEXANE | 2.1 | 0.7 | 5.6 |
| 2,2,4-TRIMETHYLPENTANE | 1.8 | 1.0 | 5.6 |
| n-HEPTANE | 1.2 | 0.4 | 4.0 |
| METHYLCYCLOHEXANE | 0.6 | 0.3 | 2.2 |
| 2,5-DIMETHYLHEXANE | * | * | 1.5 |
| 2,4-DIMETHYLHEXANE | 0.1 | 0.1 | 1.6 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 0.3 | 1.8 |
| 2-METHYLHEPTANE | 0.5 | * | 2.2 |
| 3-METHYLHEPTANE | 0.7 | 0.2 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | * | * | 0.8 |
| n-OCTANE | 1.2 | 0.4 | 2.6 |
| 2,4-DIMETHYLHEPTANE | 1.6 | 0.6 | * |
| 4-METHYLOCTANE | 0.5 | * | 2.3 |
| 3-METHYLOCTANE | 0.3 | 0.3 | 1.2 |
| n-NONANE | 1.1 | 0.5 | 2.8 |
| 4-METHYLNONANE | * | * | * |
| n-DECANE | 2.3 | 1.3 | 4.0 |
| SUM OTHER PARAFFINS | 55.0 | 11.1 | 25.6 |

|  |  |  |  |
|---|---|---|---|
| OLEFINS |  |  |  |
| ETHYLENE | 7.3 | 3.5 | 72.7 |
| PROPENE | 2.0 | 0.9 | 5.9 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.0 | 0.7 | 5.8 |
| 1,3-BUTADIENE | 0.1 | * | 0.8 |
| t-2-BUTENE | 0.6 | * | 2.2 |
| c-2-BUTENE | 0.6 | * | 1.6 |
| 1-PENTENE | * | * | 1.5 |
| 2-METHYL-1-BUTENE | 0.3 | * | 2.1 |
| ISOPRENE | * | 1.1 | 0.7 |
| t-2-PENTENE | 0.4 | * | 2.3 |
| c-2-PENTENE | 1.8 | * | 2.2 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | * | 0.5 |
| 2-METHYL-2-PENTENE | 0.1 | * | 1.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | * | 3.3 |
| a-PINENE | 2.8 | * | 0.6 |
| SUM OTHER OLEFINS | 17.8 | 2.9 | 27.1 |
| AROMATICS |  |  |  |
| BENZENE | 4.6 | 1.9 | 10.4 |
| TOLUENE | 13.0 | 7.3 | 34.7 |
| ETHYLBENZENE | 1.4 | 0.9 | 5.0 |
| m&p-XYLENE | 7.3 | 3.4 | 19.0 |
| o-XYLENE | 7.5 | 1.7 | 6.5 |
| n-PROPYLBENZENE | 0.3 | 0.1 | 1.9 |
| m-ETHYLTOLUENE | 1.6 | 1.0 | 5.7 |
| p-ETHYLTOLUENE | 1.0 | 0.6 | 3.1 |
| 1,3,5-TRIMETHYLBENZENE | 1.3 | 0.9 | 3.6 |
| o-ETHYLTOLUENE | 0.8 | 0.5 | 2.8 |
| 1,2,4-TRIMETHYLBENZENE | 3.0 | 3.3 | 9.6 |
| n-DECANE | 0.5 | 0.3 | 5.9 |
| 1,4-DIETHYLBENZENE | 1.0 | 0.5 | 2.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.6 | 0.9 | 3.5 |
| SUM OTHER AROMATICS | 10.1 | 5.8 | 29.7 |
| SUMMARY |  |  |  |
| ACETYLENE | 3.3 | 2.2 | 15.6 |
| SUM UNKNOWNS | 6.5 | 0.1 | 0.7 |
| SUM PARAFFINS | 127.7 | 52.0 | 210.6 |
| SUM OLEFINS | 37.5 | 9.3 | 131.1 |
| SUM AROMATICS | 55.5 | 29.9 | 144.8 |
| SUM HYDROCARBONS | 230.7 | 93.7 | 502.9 |

TABLE A-33a. Hydrocarbon concentration data for PHILADELPHIA 2, PA

| Compound | ID Number and Sample Date<br>1153<br>85/06/12 | 1176<br>85/06/18 | 1291<br>85/06/24 | 1430<br>85/07/02 | 1494<br>85/07/09 | 1577<br>85/07/12 | 1629<br>85/07/16 | 1803<br>85/07/23 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 18.7 | 28.1 | 12.3 | 9.4 | 23.2 | 70.7 | 25.1 | 6.1 |
| PROPANE | 31.6 | 76.3 | 24.4 | 14.1 | 32.0 | 233.4 | 60.4 | 9.6 |
| ISOBUTANE | 29.4 | 47.3 | 18.2 | 8.6 | 25.1 | 165.3 | 35.9 | 9.6 |
| n-BUTANE | 71.9 | 102.6 | 51.1 | 24.3 | 75.8 | 379.9 | 91.4 | 29.7 |
| ISOPENTANE | 66.3 | 97.0 | 39.6 | 24.4 | 78.8 | 256.0 | 86.6 | 31.0 |
| n-PENTANE | 29.9 | 42.7 | 21.0 | 11.4 | 33.9 | 133.6 | 36.9 | 11.8 |
| 2,2-DIMETHYLBUTANE | 1.6 | 2.5 | 1.1 | 0.7 | 2.5 | 6.9 | 2.2 | 0.7 |
| CYCLOPENTANE | 2.8 | 3.5 | 1.9 | 1.0 | 3.1 | 12.2 | 3.3 | 1.2 |
| 2,3-DIMETHYLBUTANE | 4.5 | 6.5 | 2.9 | 1.6 | 6.2 | 17.8 | 6.2 | 2.2 |
| 2-METHYLPENTANE | 19.0 | 27.1 | 12.8 | 6.8 | 24.8 | 73.3 | 25.1 | 8.5 |
| 3-METHYLPENTANE | 14.5 | 24.0 | 9.5 | 4.1 | 19.5 | 67.2 | 15.3 | 5.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 12.9 | 18.7 | 10.1 | 4.3 | 15.1 | 58.9 | 17.2 | 4.7 |
| METHYLCYCLOPENTANE | 7.8 | 11.1 | 6.1 | 3.0 | 10.0 | 36.4 | 10.9 | 3.4 |
| 2,4-DIMETHYLPENTANE | 2.6 | 3.5 | 1.5 | 0.8 | 3.5 | 8.8 | 3.1 | 1.2 |
| CYCLOHEXANE | 2.4 | 3.6 | 2.0 | 0.7 | 2.4 | 20.9 | 3.5 | 0.6 |
| 2-METHYLHEXANE | 9.2 | 15.5 | 6.0 | 3.2 | 9.3 | 43.3 | 16.7 | 6.6 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | 4.2 | * | * | * |
| 3-METHYLHEXANE | 7.8 | 12.8 | 4.7 | 2.4 | 9.8 | 32.2 | 10.4 | 3.6 |
| 2,2,4-TRIMETHYLPENTANE | 8.1 | 14.2 | 5.7 | 3.0 | 12.5 | 38.6 | 10.5 | 3.4 |
| n-HEPTANE | 7.1 | 10.3 | 5.2 | 2.5 | 8.1 | 47.0 | 11.2 | 2.2 |
| METHYLCYCLOHEXANE | 4.7 | 9.9 | 3.7 | 2.7 | 4.5 | 38.2 | 9.3 | 2.1 |
| 2,5-DIMETHYLHEXANE | 1.8 | 2.8 | 1.3 | 0.8 | 2.5 | 8.6 | 2.8 | 0.9 |
| 2,4-DIMETHYLHEXANE | 1.9 | 2.8 | 1.4 | 0.7 | 2.8 | 7.4 | 2.6 | 0.8 |
| 2,3,4-TRIMETHYLPENTANE | 2.4 | 3.7 | 1.5 | 1.9 | 4.2 | 9.1 | 3.8 | 1.4 |
| 2-METHYLHEPTANE | 3.4 | 4.5 | 3.1 | 1.6 | 4.2 | 17.4 | 5.6 | 0.9 |
| 3-METHYLHEPTANE | 3.0 | 4.5 | 2.1 | 1.3 | 4.4 | 11.8 | 5.4 | 1.7 |
| 2,2,5-TRIMETHYLHEXANE | 1.0 | 1.6 | 0.7 | 0.3 | 1.6 | 4.6 | 1.5 | 0.4 |
| n-OCTANE | 3.4 | 4.7 | 3.0 | * | 4.1 | 26.7 | 7.3 | 2.2 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | 1.7 | * | * |
| 4-METHYLOCTANE | 2.2 | 2.8 | 1.6 | 0.6 | 2.9 | 7.9 | 3.1 | 0.8 |
| 3-METHYLOCTANE | 1.5 | 2.0 | 1.5 | 0.9 | 2.4 | 6.3 | 2.7 | 0.8 |
| n-NONANE | 2.4 | 3.3 | 2.3 | 1.3 | 3.2 | 15.1 | 4.1 | 0.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.5 | 6.5 | 3.7 | 2.3 | 5.5 | 18.3 | 4.7 | 1.4 |
| SUM OTHER PARAFFINS | 48.4 | 69.5 | 28.1 | 28.2 | 44.9 | 170.6 | 51.6 | 12.1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 21.1 | 32.3 | 18.0 | 10.8 | 40.5 | 54.6 | 32.6 | 13.4 |
| PROPENE | 12.6 | 17.1 | 17.9 | 3.2 | 13.6 | 103.7 | 19.9 | 4.0 |
| 2-METHYLPROPYLENE,BUTENE-1 | 10.7 | 14.9 | 5.9 | 4.1 | 12.2 | 36.5 | 14.1 | 4.1 |
| 1,3-BUTADIENE | 1.7 | 2.3 | 1.6 | 0.6 | 3.1 | 3.2 | 1.8 | 0.5 |
| t-2-BUTENE | 5.5 | 7.1 | 2.6 | 1.5 | 6.5 | 27.3 | 6.3 | 1.9 |
| c-2-BUTENE | 4.3 | 5.4 | 1.8 | 1.1 | 4.7 | 20.5 | 5.5 | 1.6 |
| 1-PENTENE | 7.6 | 3.3 | 3.3 | 0.8 | 2.9 | 11.1 | 4.4 | 0.9 |
| 2-METHYL-1-BUTENE | 3.8 | 4.7 | 2.1 | 1.7 | 4.9 | 15.5 | 6.4 | 1.8 |
| ISOPRENE | 1.1 | 2.2 | 1.7 | 0.4 | 2.2 | 4.0 | 1.4 | 1.3 |
| t-2-PENTENE | 4.4 | 5.2 | 2.3 | 2.1 | 5.5 | 18.5 | 5.2 | 1.9 |
| c-2-PENTENE | 0.1 | 7.5 | 3.0 | 1.9 | 5.3 | 24.9 | 5.3 | 3.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.3 | 1.7 | * | 0.2 | 1.7 | * | 1.7 | 0.6 |
| 2-METHYL-2-PENTENE | 1.6 | 1.6 | 0.6 | 0.4 | 2.2 | 6.2 | 1.4 | 0.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.7 | 3.0 | 1.3 | 1.4 | 6.0 | 6.5 | 1.8 | 9.5 |
| a-PINENE | 4.4 | 5.2 | 1.2 | 2.6 | 4.7 | 8.9 | 2.5 | 1.1 |
| SUM OTHER OLEFINS | 43.2 | 40.0 | 28.9 | 19.7 | 44.1 | 114.2 | 37.4 | 16.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 17.2 | 27.7 | 11.5 | 6.9 | 25.7 | 51.0 | 27.4 | 9.1 |
| TOLUENE | 42.2 | 70.9 | 25.7 | 31.3 | 69.8 | 117.9 | 54.7 | 22.8 |
| ETHYLBENZENE | 5.6 | 8.9 | 4.0 | 3.8 | 10.4 | 18.8 | 8.5 | 3.2 |
| m&p-XYLENE | 21.1 | 31.7 | 15.8 | 13.6 | 37.8 | 63.9 | 31.3 | 12.4 |
| o-XYLENE | 8.0 | 11.8 | 5.5 | 5.3 | 13.6 | 24.0 | 12.0 | 5.3 |
| n-PROPYLBENZENE | 1.8 | 3.0 | 1.1 | 0.8 | 3.2 | 8.2 | 2.5 | 0.8 |
| m-ETHYLTOLUENE | 6.8 | 10.0 | 4.5 | 3.0 | 10.5 | 17.0 | 8.4 | 3.3 |
| p-ETHYLTOLUENE | 3.7 | 5.3 | 2.8 | 1.8 | 6.1 | 10.3 | 4.4 | 1.8 |
| 1,3,5-TRIMETHYLBENZENE | 3.8 | 5.1 | 3.0 | 1.8 | 6.5 | 12.0 | 5.5 | 2.1 |
| o-ETHYLTOLUENE | 3.6 | 4.7 | 2.6 | 2.6 | 5.2 | 9.8 | 4.2 | 1.6 |
| 1,2,4-TRIMETHYLBENZENE | 9.8 | 14.4 | 8.4 | 5.5 | 17.9 | 29.0 | 15.1 | 6.6 |
| n-DECANE | * | * | 14.1 | * | 52.8 | 110.3 | 3.6 | 1.4 |
| 1,4-DIETHYLBENZENE | 3.8 | 4.8 | 1.8 | 1.7 | 5.9 | 10.5 | 4.4 | 1.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.1 | 4.6 | 4.0 | 1.7 | 4.5 | 17.3 | 3.4 | 1.6 |
| SUM OTHER AROMATICS | 307.3 | 266.5 | 41.3 | 50.6 | 55.3 | 125.3 | 44.9 | 17.2 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 15.1 | 29.9 | 13.0 | 8.7 | 25.2 | 36.7 | 27.7 | 9.6 |
| SUM UNKNOWNS | 7.8 | 19.3 | 10.2 | 12.4 | 9.9 | 18.3 | 4.3 | 1.5 |
| SUM PARAFFINS | 429.4 | 667.3 | 291.6 | 170.0 | 488.2 | 2047.4 | 577.6 | 169.5 |
| SUM OLEFINS | 124.8 | 154.1 | 92.9 | 53.5 | 160.9 | 456.1 | 148.4 | 63.7 |
| SUM AROMATICS | 438.3 | 470.0 | 146.6 | 130.9 | 325.9 | 625.9 | 230.9 | 91.5 |
| SUM HYDROCARBONS | 1016.3 | 1340.9 | 555.0 | 375.7 | 1010.2 | 3188.0 | 989.1 | 336.1 |

TABLE A-33b. Hydrocarbon concentration data for PHILADELPHIA 2, PA

| Compound | ID Number and Sample Date<br>1832<br>85/07/30 | <br>2064<br>85/08/13 | <br>2216<br>85/08/22 |
|---|---|---|---|
| **PARAFFINS** | | | |
| ETHANE | 20.4 | 21.5 | 11.2 |
| PROPANE | 47.9 | 39.0 | 21.1 |
| ISOBUTANE | 38.4 | 30.4 | 12.1 |
| n-BUTANE | 67.9 | 80.1 | 28.4 |
| ISOPENTANE | 62.6 | 83.6 | 35.0 |
| n-PENTANE | 29.6 | 36.9 | 14.4 |
| 2,2-DIMETHYLBUTANE | 2.0 | 2.8 | 1.3 |
| CYCLOPENTANE | 3.1 | 3.4 | 1.5 |
| 2,3-DIMETHYLBUTANE | 5.1 | 6.0 | 2.6 |
| 2-METHYLPENTANE | 21.7 | 24.6 | 11.2 |
| 3-METHYLPENTANE | 44.2 | 25.8 | 7.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 14.4 | 16.2 | 7.6 |
| METHYLCYCLOPENTANE | 9.0 | 9.9 | 4.9 |
| 2,4-DIMETHYLPENTANE | 2.8 | 3.2 | 1.4 |
| CYCLOHEXANE | 2.3 | 2.6 | 1.2 |
| 2-METHYLHEXANE | 14.4 | 21.3 | 8.5 |
| 2,3-DIMETHYLPENTANE | * | * | * |
| 3-METHYLHEXANE | 9.4 | 14.5 | 5.4 |
| 2,2,4-TRIMETHYLPENTANE | 11.2 | 10.9 | 4.7 |
| n-HEPTANE | 7.5 | 13.2 | 4.0 |
| METHYLCYCLOHEXANE | 5.6 | 7.0 | 3.7 |
| 2,5-DIMETHYLHEXANE | 2.4 | 2.6 | 1.3 |
| 2,4-DIMETHYLHEXANE | 2.4 | 2.5 | 1.3 |
| 2,3,4-TRIMETHYLPENTANE | 3.8 | 3.3 | 1.7 |
| 2-METHYLHEPTANE | 3.6 | 4.0 | 2.4 |
| 3-METHYLHEPTANE | 4.0 | 4.3 | 2.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.2 | 1.2 | 0.6 |
| n-OCTANE | 3.8 | 4.6 | 2.8 |
| 2,4-DIMETHYLHEPTANE | * | * | * |
| 4-METHYLOCTANE | 2.7 | 3.5 | 1.6 |
| 3-METHYLOCTANE | 2.3 | 3.0 | 1.1 |
| n-NONANE | 3.0 | 6.3 | 2.5 |
| 4-METHYLNONANE | * | 2.2 | * |
| n-DECANE | 3.9 | 8.7 | 3.4 |
| SUM OTHER PARAFFINS | 38.3 | 57.5 | 22.1 |

| | | | |
|---|---|---|---|
| OLEFINS | | | |
| ETHYLENE | 33.0 | 25.2 | 20.2 |
| PROPENE | 19.4 | 9.9 | 6.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 10.3 | 0.0 | 6.1 |
| 1,3-BUTADIENE | 2.2 | 1.3 | 1.4 |
| t-2-BUTENE | 4.5 | 4.2 | 2.7 |
| c-2-BUTENE | 3.3 | 3.3 | 2.0 |
| 1-PENTENE | 2.3 | 3.6 | 1.3 |
| 2-METHYL-1-BUTENE | 3.9 | 8.1 | 2.0 |
| ISOPRENE | 2.2 | 1.9 | 1.6 |
| t-2-PENTENE | 4.1 | 3.4 | 2.4 |
| c-2-PENTENE | 5.9 | 2.0 | 3.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 6.9 | 1.3 | 1.9 |
| 2-METHYL-2-PENTENE | 1.4 | 1.6 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.9 | 4.3 | 3.0 |
| a-PINENE | 1.4 | 2.6 | 0.1 |
| SUM OTHER OLEFINS | 34.1 | 29.2 | 16.5 |
| AROMATICS | | | |
| BENZENE | 24.8 | 19.6 | 12.9 |
| TOLUENE | 56.8 | 108.9 | 48.4 |
| ETHYLBENZENE | 8.5 | 10.7 | 5.9 |
| m&p-XYLENE | 31.0 | 37.2 | 22.1 |
| o-XYLENE | 11.8 | 13.1 | 8.6 |
| n-PROPYLBENZENE | 2.4 | 2.6 | 1.2 |
| m-ETHYLTOLUENE | 8.5 | 8.1 | 4.4 |
| p-ETHYLTOLUENE | 4.5 | 4.9 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 5.2 | 4.3 | 3.1 |
| o-ETHYLTOLUENE | 4.2 | 5.2 | 2.9 |
| 1,2,4-TRIMETHYLBENZENE | 15.8 | 14.5 | 16.5 |
| n-DECANE | 3.9 | 4.0 | 2.1 |
| 1,4-DIETHYLBENZENE | 3.8 | 3.3 | 2.2 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.1 | 4.7 | 2.5 |
| SUM OTHER AROMATICS | 37.8 | 47.8 | 24.4 |
| SUMMARY | | | |
| ACETYLENE | 20.6 | 26.3 | 17.2 |
| SUM UNKNOWNS | 2.7 | 6.6 | 2.0 |
| SUM PARAFFINS | 492.2 | 558.2 | 232.0 |
| SUM OLEFINS | 137.4 | 102.8 | 72.7 |
| SUM AROMATICS | 222.8 | 289.5 | 159.4 |
| SUM HYDROCARBONS | 875.8 | 984.0 | 483.9 |

TABLE A-34a. Hydrocarbon concentration data for PORTLAND, ME

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1375<br>85/07/01 | 1419<br>85/07/05 | 1472<br>85/07/08 | 1625<br>85/07/17 | 1667<br>85/07/19 | 1747<br>85/07/25 | 1820<br>85/07/30 | 1954<br>85/08/07 |
| PARAFFINS | | | | | | | | |
| ETHANE | 12.9 | 12.1 | 7.3 | 8.2 | 11.5 | 6.2 | 9.5 | 5.4 |
| PROPANE | 36.9 | 33.5 | 6.8 | 18.9 | 29.9 | 20.4 | 23.4 | 12.3 |
| ISOBUTANE | 74.6 | 45.0 | 8.6 | 15.0 | 69.6 | 49.2 | 28.6 | 17.3 |
| n-BUTANE | 164.1 | 110.8 | 24.9 | 33.7 | 147.9 | 89.2 | 68.8 | 45.7 |
| ISOPENTANE | 126.2 | 91.3 | 18.7 | 34.1 | 118.1 | 74.7 | 61.9 | 47.2 |
| n-PENTANE | 50.6 | 36.3 | 10.6 | 12.6 | 46.2 | 26.2 | 24.8 | 19.8 |
| 2,2-DIMETHYLBUTANE | 3.0 | 2.1 | 0.6 | 0.9 | 2.7 | 1.4 | 1.4 | 1.3 |
| CYCLOPENTANE | 4.1 | 2.9 | 0.9 | 1.2 | 4.1 | 2.2 | 2.3 | 1.9 |
| 2,3-DIMETHYLBUTANE | 7.1 | 5.1 | 1.6 | 1.8 | 6.1 | 3.5 | 3.6 | 3.0 |
| 2-METHYLPENTANE | 30.1 | 22.1 | 8.0 | 8.4 | 24.3 | 14.4 | 14.8 | 11.9 |
| 3-METHYLPENTANE | 28.9 | 15.9 | 9.8 | 6.3 | 15.0 | 9.1 | 9.4 | 7.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 25.8 | 19.9 | 6.8 | 4.5 | 12.9 | 7.3 | 9.7 | 7.5 |
| METHYLCYCLOPENTANE | 14.1 | 12.2 | 3.8 | 3.4 | 8.8 | 5.5 | 6.2 | 4.5 |
| 2,4-DIMETHYLPENTANE | 3.4 | 2.2 | 1.2 | 0.9 | 2.8 | 1.5 | 2.0 | 1.8 |
| CYCLOHEXANE | 1.9 | 1.3 | 0.4 | 0.4 | 1.5 | 0.8 | 0.9 | 0.7 |
| 2-METHYLHEXANE | 7.7 | 10.0 | 2.9 | 5.3 | 12.9 | 7.2 | 9.1 | 11.2 |
| 2,3-DIMETHYLPENTANE | 3.3 | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 8.8 | 5.6 | 2.1 | 2.9 | 7.0 | 4.0 | 4.9 | 5.4 |
| 2,2,4-TRIMETHYLPENTANE | 10.7 | 7.8 | 2.8 | 2.2 | 8.2 | 3.7 | 4.8 | 4.4 |
| n-HEPTANE | 12.0 | 4.7 | 2.0 | 1.4 | 5.9 | 2.5 | 2.7 | 2.9 |
| METHYLCYCLOHEXANE | 3.9 | 2.6 | 1.1 | 1.1 | 3.3 | 1.7 | 2.0 | 1.8 |
| 2,5-DIMETHYLHEXANE | 2.3 | 1.5 | 1.3 | * | 1.8 | 0.9 | 1.3 | 1.1 |
| 2,4-DIMETHYLHEXANE | 2.6 | 1.3 | 1.9 | 0.1 | 1.8 | 0.8 | 1.2 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 3.0 | 1.8 | 1.1 | 1.5 | 2.3 | 1.1 | 1.8 | 1.6 |
| 2-METHYLHEPTANE | 3.4 | 2.0 | 1.6 | 0.7 | 2.7 | 0.8 | 1.8 | 1.5 |
| 3-METHYLHEPTANE | 3.3 | 2.4 | 0.8 | 1.4 | 2.9 | 1.5 | 2.0 | 1.9 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 0.5 | 0.1 | 0.2 | 0.5 | 0.2 | 0.4 | 0.4 |
| n-OCTANE | 3.7 | 1.5 | 0.9 | 1.0 | 3.2 | 1.6 | 0.6 | 1.1 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | 2.7 | 1.7 | * | 0.6 | 1.8 | 0.9 | 1.3 | 1.1 |
| 3-METHYLOCTANE | 1.9 | 1.5 | * | 1.0 | 1.4 | 0.8 | 0.9 | 1.0 |
| n-NONANE | 2.8 | 1.5 | 1.0 | 1.2 | 1.8 | 1.1 | 1.4 | 1.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.2 | 2.5 | 1.0 | 2.1 | 2.9 | 1.5 | 2.6 | 2.5 |
| SUM OTHER PARAFFINS | 86.0 | 28.7 | 157.7 | 17.4 | 30.3 | 12.6 | 16.4 | 25.4 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** |  |  |  |  |  |  |  |  |
| ETHYLENE | 19.9 | 18.1 | 10.4 | 10.1 | 19.1 | 6.1 | 14.3 | 7.2 |
| PROPENE | 7.4 | 5.3 | 2.1 | 3.0 | 6.7 | 4.2 | 4.3 | 3.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 17.4 | * | 5.7 | 0.6 | * | 0.2 | 8.7 | 0.5 |
| 1,3-BUTADIENE | 1.5 | 1.0 | 0.6 | 0.5 | 1.2 | 0.2 | 0.8 | 0.4 |
| t-2-BUTENE | 8.6 | 4.8 | 2.2 | 3.9 | 13.4 | 7.3 | 5.0 | 3.7 |
| c-2-BUTENE | 7.5 | 4.1 | 1.8 | 3.2 | 10.6 | 6.0 | 4.0 | 2.8 |
| 1-PENTENE | 6.1 | 3.6 | * | 1.6 | 5.0 | 2.6 | 2.4 | 1.4 |
| 2-METHYL-1-BUTENE | 6.9 | 4.4 | 1.7 | 2.5 | 6.9 | 4.0 | 3.5 | 2.4 |
| ISOPRENE | 2.2 | 1.9 | 1.3 | 1.3 | 2.7 | 1.8 | 1.6 | * |
| t-2-PENTENE | 5.1 | 4.5 | 1.6 | 3.0 | 8.3 | 4.6 | 4.5 | 3.2 |
| c-2-PENTENE | 8.0 | 3.6 | 2.7 | 3.3 | 9.9 | 5.3 | 4.7 | 4.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 2.0 | 2.4 | 0.7 | 0.7 | 2.1 | 4.9 | 1.4 | 0.7 |
| 2-METHYL-2-PENTENE | 1.7 | 0.8 | 0.8 | 0.7 | 1.7 | 0.9 | 0.9 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 5.5 | 1.7 | 1.2 | 0.7 | 2.0 | 1.0 | 2.0 | 1.6 |
| a-PINENE | 22.2 | 9.8 | 41.8 | 2.8 | 2.0 | 1.3 | 3.2 | 0.2 |
| SUM OTHER OLEFINS | 51.8 | 30.0 | 51.6 | 15.1 | 23.4 | 18.3 | 18.6 | 14.6 |
| **AROMATICS** |  |  |  |  |  |  |  |  |
| BENZENE | 18.1 | 13.6 | 7.3 | 6.9 | 17.4 | 8.5 | 12.2 | 10.3 |
| TOLUENE | 83.2 | 38.0 | 17.2 | 15.4 | 44.2 | 33.5 | 32.6 | 36.3 |
| ETHYLBENZENE | 8.1 | 5.3 | 2.6 | 2.7 | 6.9 | 2.7 | 4.5 | 3.8 |
| m&p-XYLENE | 27.0 | 18.0 | 10.8 | 10.6 | 24.0 | 10.1 | 15.5 | 13.6 |
| o-XYLENE | 9.3 | 6.8 | 4.1 | 5.7 | 9.8 | 4.0 | 7.0 | 6.4 |
| n-PROPYLBENZENE | 2.2 | 1.2 | 1.7 | 0.7 | 1.5 | 0.7 | 1.3 | 0.9 |
| m-ETHYLTOLUENE | 8.3 | 5.7 | 6.2 | 2.9 | 5.7 | 2.8 | 4.8 | 3.1 |
| p-ETHYLTOLUENE | 4.3 | 2.6 | 2.7 | 1.4 | 2.8 | 1.4 | 2.4 | 1.1 |
| 1,3,5-TRIMETHYLBENZENE | 3.8 | 2.8 | 1.6 | 2.0 | 3.5 | 1.9 | 2.7 | 2.1 |
| o-ETHYLTOLUENE | 3.8 | 2.5 | 2.6 | 1.6 | 2.8 | 1.3 | 2.6 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 11.5 | 8.0 | 4.5 | 5.3 | 16.9 | 6.1 | 8.4 | 1.2 |
| n-DECANE | 13.7 | * | * | 1.0 | 1.8 | 1.1 | 2.1 | * |
| 1,4-DIETHYLBENZENE | 3.9 | 2.1 | 1.5 | 1.4 | 2.0 | 1.0 | 1.6 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.0 | 2.1 | 1.1 | 1.6 | 1.9 | 1.1 | * | 1.8 |
| SUM OTHER AROMATICS | 59.1 | 46.2 | 689.3 | 18.2 | 27.4 | 23.3 | 19.6 | 56.7 |
| **SUMMARY** |  |  |  |  |  |  |  |  |
| ACETYLENE | 20.7 | 12.4 | 6.6 | 4.5 | 15.3 | 7.4 | 12.2 | 8.2 |
| SUM UNKNOWNS | 9.0 | 3.1 | 24.1 | 5.2 | 5.6 | 5.2 | 1.9 | 10.2 |
| SUM PARAFFINS | 746.9 | 491.3 | 289.4 | 191.6 | 593.4 | 355.7 | 324.0 | 255.5 |
| SUM OLEFINS | 174.6 | 96.6 | 126.8 | 53.5 | 115.5 | 69.5 | 80.6 | 47.8 |
| SUM AROMATICS | 260.1 | 155.4 | 753.7 | 78.0 | 169.2 | 100.1 | 117.8 | 141.1 |
| SUM HYDROCARBONS | 1211.6 | 759.0 | 1200.8 | 333.0 | 899.3 | 538.1 | 536.7 | 463.0 |

TABLE A-34b. Hydrocarbon concentration data for PORTLAND, ME

| Compound | ID Number and Sample Date<br>2042<br>85/08/13 | <br>2081<br>85/08/15 | <br>2090<br>85/08/14 | <br>2137<br>85/08/19 | <br>2296<br>85/08/29 | <br>2323CS0<br>85/08/30 |
|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | |
| ETHANE | 5.1 | 16.7 | 9.4 | 6.1 | 17.1 | 6.5 |
| PROPANE | 6.1 | 100.9 | 24.5 | 4.3 | 62.0 | 9.4 |
| ISOBUTANE | 5.6 | 17.4 | 33.5 | 5.3 | 6.9 | 4.5 |
| n-BUTANE | 8.7 | 47.3 | 86.3 | 15.7 | 13.8 | 11.4 |
| ISOPENTANE | 9.6 | 47.6 | 76.7 | 18.0 | 17.0 | 11.8 |
| n-PENTANE | 3.8 | 19.0 | 30.1 | 7.5 | 9.3 | 4.9 |
| 2,2-DIMETHYLBUTANE | 0.2 | 1.0 | 1.7 | 0.4 | 0.3 | 0.3 |
| CYCLOPENTANE | 0.3 | 2.2 | 2.6 | 0.6 | 0.9 | 0.4 |
| 2,3-DIMETHYLBUTANE | 0.6 | 3.2 | 4.5 | 1.4 | 1.0 | 0.9 |
| 2-METHYLPENTANE | 2.8 | 11.9 | 17.2 | 5.5 | 4.1 | 3.6 |
| 3-METHYLPENTANE | 2.1 | 7.5 | 11.2 | 4.0 | 2.7 | 2.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 1.6 | 6.6 | 9.7 | 3.1 | 4.6 | 2.1 |
| METHYLCYCLOPENTANE | 1.2 | 4.6 | 6.5 | 2.3 | 2.2 | 1.7 |
| 2,4-DIMETHYLPENTANE | * | 2.1 | 2.6 | 1.0 | * | 0.8 |
| CYCLOHEXANE | 0.1 | 0.7 | 1.1 | 0.3 | 7.8 | 0.2 |
| 2-METHYLHEXANE | * | 9.2 | 11.2 | 5.0 | 6.9 | * |
| 2,3-DIMETHYLPENTANE | 3.0 | * | * | * | * | 3.8 |
| 3-METHYLHEXANE | 1.1 | 4.3 | 5.9 | 2.2 | 4.0 | 1.6 |
| 2,2,4-TRIMETHYLPENTANE | 1.4 | 7.8 | 8.5 | 3.7 | 2.8 | 2.7 |
| n-HEPTANE | 0.6 | 2.7 | 3.5 | 1.1 | 4.9 | 1.3 |
| METHYLCYCLOHEXANE | 0.5 | 1.7 | 2.5 | 0.9 | 13.4 | 0.6 |
| 2,5-DIMETHYLHEXANE | 0.1 | 1.4 | 1.6 | 0.5 | 1.0 | 0.4 |
| 2,4-DIMETHYLHEXANE | 0.3 | 1.6 | 1.7 | 0.8 | 0.7 | 0.5 |
| 2,3,4-TRIMETHYLPENTANE | 0.6 | 3.1 | 2.7 | 1.5 | 0.9 | 1.1 |
| 2-METHYLHEPTANE | 0.2 | 1.6 | 2.2 | 0.6 | 1.3 | 0.3 |
| 3-METHYLHEPTANE | 0.5 | 1.9 | 2.4 | 1.1 | 1.0 | 0.8 |
| 2,2,5-TRIMETHYLHEXANE | 0.0 | 0.5 | 0.6 | 0.2 | 0.6 | 0.2 |
| n-OCTANE | 0.5 | 2.5 | 3.3 | 1.5 | 3.5 | 3.5 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.8 | * | * | * |
| 4-METHYLOCTANE | 0.2 | 1.1 | 1.5 | 0.7 | 0.8 | 0.4 |
| 3-METHYLOCTANE | 0.3 | 1.0 | 1.1 | 0.5 | 1.2 | 0.3 |
| n-NONANE | 0.4 | 1.7 | 1.6 | 0.7 | 2.6 | 0.5 |
| 4-METHYLNONANE | * | * | * | * | 1.1 | 0.1 |
| n-DECANE | 0.7 | 2.1 | 2.8 | 1.8 | 7.7 | 0.9 |
| SUM OTHER PARAFFINS | 4.5 | 20.1 | 26.4 | 7.9 | 59.6 | 8.9 |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |
| ETHYLENE | 4.7 | 13.3 | 21.5 | 6.3 | 14.2 | 10.3 |
| PROPENE | 1.1 | 5.1 | 6.7 | 2.3 | 6.4 | 2.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 1.5 | 7.0 | 10.1 | 2.9 | 3.0 | 2.3 |
| 1,3-BUTADIENE | * | 1.1 | 1.2 | 0.4 | 0.4 | 0.4 |
| t-2-BUTENE | 0.6 | 4.5 | 6.5 | 1.6 | 1.0 | 0.9 |
| c-2-BUTENE | 0.6 | 3.7 | 5.3 | 1.4 | 0.7 | 0.8 |
| 1-PENTENE | 0.3 | 2.2 | 3.1 | 0.8 | 1.5 | 0.4 |
| 2-METHYL-1-BUTENE | 0.5 | 5.3 | 4.4 | 1.3 | 0.6 | 0.1 |
| ISOPRENE | * | 4.4 | 1.4 | 0.4 | 3.2 | * |
| t-2-PENTENE | 0.6 | 3.8 | 5.0 | 3.2 | 0.9 | 0.8 |
| c-2-PENTENE | 1.2 | 4.8 | 5.9 | 2.1 | 10.3 | 1.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.1 | 1.6 | 2.2 | 0.3 | * | 0.2 |
| 2-METHYL-2-PENTENE | 0.0 | 1.2 | 1.3 | 0.7 | 0.3 | 0.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.7 | 3.1 | 2.1 | 0.5 | 29.5 | 0.4 |
| a-PINENE | 1.1 | 3.2 | 1.0 | 0.2 | 21.4 | 1.0 |
| SUM OTHER OLEFINS | 8.2 | 18.4 | 22.3 | 10.2 | 84.5 | 5.3 |
| AROMATICS |  |  |  |  |  |  |
| BENZENE | 2.3 | 11.0 | 14.4 | 4.6 | 4.9 | 4.0 |
| TOLUENE | 6.6 | 27.2 | 38.6 | 12.6 | 37.2 | 9.3 |
| ETHYLBENZENE | 1.0 | 4.2 | 5.6 | 2.2 | 2.9 | 1.5 |
| m&p-XYLENE | 4.0 | 14.9 | 19.4 | 8.6 | 9.5 | 5.9 |
| o-XYLENE | 2.1 | 7.2 | 8.7 | 3.9 | 5.9 | 2.9 |
| n-PROPYLBENZENE | 0.2 | 1.0 | 1.4 | 0.5 | 0.5 | 0.3 |
| m-ETHYLTOLUENE | 1.2 | 3.9 | 5.0 | 2.4 | 2.5 | 2.0 |
| p-ETHYLTOLUENE | 0.6 | 1.3 | 2.6 | 1.2 | 1.6 | 0.8 |
| 1,3,5-TRIMETHYLBENZENE | 0.6 | 2.1 | 2.9 | 1.6 | 1.8 | 0.7 |
| o-ETHYLTOLUENE | 0.6 | 2.1 | 2.4 | 1.3 | 3.9 | 1.0 |
| 1,2,4-TRIMETHYLBENZENE | 2.8 | 3.1 | 9.5 | 7.9 | 5.7 | 6.6 |
| n-DECANE | 0.3 | 1.7 | 1.6 | 0.7 | 2.0 | 0.4 |
| 1,4-DIETHYLBENZENE | 0.6 | 1.6 | 1.9 | 0.9 | 1.4 | 0.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.5 | * | 1.8 | 1.0 | 6.7 | 0.7 |
| SUM OTHER AROMATICS | 8.0 | 23.0 | 18.7 | 8.4 | 55.0 | 6.4 |
| SUMMARY |  |  |  |  |  |  |
| ACETYLENE | 3.5 | 14.6 | 14.2 | 7.3 | 11.2 | 5.1 |
| SUM UNKNOWNS | 3.8 | 3.4 | 1.9 | 1.0 | 9.4 | 4.6 |
| SUM PARAFFINS | 63.9 | 354.2 | 399.4 | 107.5 | 265.1 | 90.5 |
| SUM OLEFINS | 23.8 | 83.0 | 100.8 | 35.1 | 178.6 | 27.1 |
| SUM AROMATICS | 32.1 | 104.8 | 135.2 | 58.3 | 142.3 | 43.7 |
| SUM HYDROCARBONS | 129.7 | 560.5 | 651.6 | 209.3 | 606.7 | 171.2 |

## TABLE A-35a. Hydrocarbon concentration data for RICHMOND, VA

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1043<br>85/06/05 | 1084<br>85/06/10 | 1179<br>85/06/18 | 1206<br>84/07/12 | 1248<br>84/07/16 | 1251<br>85/06/21 | 1274<br>85/06/24 | 1326<br>85/06/27 |
| PARAFFINS | | | | | | | | |
| ETHANE | 11.2 | 14.2 | 13.7 | 9.3 | 7.1 | 25.2 | 10.0 | 8.4 |
| PROPANE | 6.9 | 12.7 | 7.9 | 6.2 | 5.3 | 17.3 | 7.4 | 6.8 |
| ISOBUTANE | 7.3 | 16.6 | 7.9 | 7.1 | 3.5 | 32.3 | 5.3 | 3.7 |
| n-BUTANE | 31.3 | 69.3 | 33.6 | 34.8 | 13.8 | 131.3 | 23.0 | 16.3 |
| ISOPENTANE | 30.7 | 47.5 | 27.8 | 37.4 | 16.3 | 102.4 | 24.5 | 15.2 |
| n-PENTANE | 16.3 | 22.5 | 13.5 | 16.6 | 7.9 | 44.6 | 12.4 | 7.4 |
| 2,2-DIMETHYLBUTANE | 1.1 | 1.4 | 0.8 | 1.0 | 0.4 | 3.1 | 0.7 | 0.2 |
| CYCLOPENTANE | 1.3 | 1.7 | 1.3 | 1.4 | 0.7 | 3.5 | 1.0 | 0.7 |
| 2,3-DIMETHYLBUTANE | 2.8 | 3.8 | 2.4 | 3.0 | 1.4 | 7.4 | 2.3 | 1.2 |
| 2-METHYLPENTANE | 10.1 | 12.8 | 8.5 | 11.1 | 5.3 | 24.2 | 8.3 | 4.4 |
| 3-METHYLPENTANE | 6.9 | 9.9 | 7.8 | 10.7 | 5.9 | 16.9 | 5.0 | 2.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.6 | 8.7 | 5.2 | 6.3 | 3.2 | 15.2 | 5.6 | 3.0 |
| METHYLCYCLOPENTANE | 3.7 | 4.8 | 3.2 | 4.0 | 2.2 | 8.7 | 3.2 | 1.7 |
| 2,4-DIMETHYLPENTANE | 2.0 | 4.2 | 1.7 | 2.3 | 1.1 | 7.9 | 1.6 | 0.8 |
| CYCLOHEXANE | 0.9 | 1.2 | 0.6 | 0.7 | 0.5 | 2.0 | 0.7 | 0.3 |
| 2-METHYLHEXANE | 3.0 | 3.7 | 2.5 | 3.1 | 1.7 | 7.7 | 3.3 | 3.3 |
| 2,3-DIMETHYLPENTANE | 2.0 | 3.0 | 1.9 | 3.0 | 2.4 | 6.1 | 2.3 | * |
| 3-METHYLHEXANE | 3.5 | 8.2 | 3.0 | 3.2 | * | 9.1 | 3.0 | 1.7 |
| 2,2,4-TRIMETHYLPENTANE | 6.7 | 7.9 | 4.7 | 5.0 | 2.9 | 14.0 | 5.3 | 2.4 |
| n-HEPTANE | 3.2 | 4.2 | 2.3 | 2.5 | 1.8 | 6.5 | 2.3 | 1.2 |
| METHYLCYCLOHEXANE | 1.7 | 2.4 | 1.5 | 1.9 | 1.2 | 4.6 | 1.8 | 1.1 |
| 2,5-DIMETHYLHEXANE | 1.2 | 1.6 | 1.0 | 1.2 | 1.2 | 2.8 | 1.1 | 0.6 |
| 2,4-DIMETHYLHEXANE | 1.4 | 2.1 | 1.2 | 1.6 | 2.4 | 3.0 | 1.2 | 0.5 |
| 2,3,4-TRIMETHYLPENTANE | 2.2 | 2.8 | 1.9 | 1.6 | 1.1 | 4.7 | 2.3 | 0.7 |
| 2-METHYLHEPTANE | 1.1 | 3.0 | 0.9 | 1.2 | 1.0 | 3.6 | 1.7 | 0.6 |
| 3-METHYLHEPTANE | 1.4 | 2.0 | 1.2 | 1.6 | 1.0 | 3.6 | 1.3 | 0.7 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 1.0 | 0.7 | 0.6 | 0.3 | 2.0 | 0.8 | 0.3 |
| n-OCTANE | 0.9 | 1.9 | 0.7 | 1.6 | 0.7 | 4.2 | 1.4 | 0.9 |
| 2,4-DIMETHYLHEPTANE | * | * | 0.0 | * | * | 0.3 | * | * |
| 4-METHYLOCTANE | 0.9 | * | 0.8 | * | * | 2.6 | 0.9 | 0.4 |
| 3-METHYLOCTANE | 0.8 | 1.0 | 0.6 | 0.8 | 0.6 | 1.8 | 0.6 | * |
| n-NONANE | 23.0 | 1.9 | 0.9 | 2.7 | 0.9 | 2.9 | 1.4 | 0.8 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 6.8 | 3.7 | 1.7 | 3.3 | 2.0 | 5.1 | 2.3 | 1.3 |
| SUM OTHER PARAFFINS | 44.4 | 107.8 | 57.2 | 54.1 | 84.9 | 53.5 | 58.4 | 25.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEF NS | | | | | | | | |
| ETHYL NE | 15.7 | 16.1 | 13.7 | 15.3 | 11.5 | 28.0 | 13.9 | 9.1 |
| PROP E | 5.4 | 6.2 | 4.2 | 4.9 | 4.0 | 9.3 | 4.6 | 2.5 |
| 2-ME YLPROPYLENE,BUTENE-1 | 4.3 | 6.6 | 4.1 | 5.7 | 4.6 | 11.3 | 3.9 | 2.3 |
| 1,3-I UTADIENE | 1.1 | 1.2 | 0.9 | 0.7 | 0.5 | 2.1 | 1.0 | 0.4 |
| t-2-I UTENE | 1.7 | 2.8 | 1.7 | 2.5 | 1.0 | 7.1 | 1.3 | 0.8 |
| c-2-I UTENE | 1.2 | 2.1 | 1.2 | 1.9 | 0.8 | 5.4 | 0.9 | 0.5 |
| 1-PE ENE | 1.9 | * | 7.1 | 1.2 | 0.7 | 4.1 | 1.5 | 0.7 |
| 2-ME YL-1-BUTENE | 1.9 | 2.5 | 1.5 | 2.1 | 0.9 | 6.4 | 1.5 | 0.8 |
| ISOP NE | 4.6 | 8.2 | 3.2 | 10.9 | 2.3 | 5.1 | 3.7 | 2.2 |
| t-2-I NTENE | 2.0 | 3.1 | 1.9 | 2.4 | 1.1 | 7.0 | 1.6 | 1.0 |
| c-2-I NTENE | 1.9 | 0.4 | 1.8 | 2.8 | 1.8 | 6.9 | 2.1 | 1.5 |
| 2-ME YL-1-PENTENE,1-HEXENE | 0.3 | 0.4 | 4.3 | 1.8 | 0.5 | 1.1 | 0.3 | 0.1 |
| 2-ME YL-2-PENTENE | 0.8 | 1.4 | 0.6 | 0.8 | 0.3 | 2.1 | 0.6 | 0.3 |
| 2,2, TRIMETHYL-1-BUTENE | 1.1 | 4.1 | 2.0 | 1.3 | 2.3 | 3.1 | 0.8 | 4.5 |
| a-PI NE | 3.1 | 5.1 | 6.2 | 2.0 | 1.2 | 3.1 | 2.4 | 3.6 |
| SUM C HER OLEFINS | 71.4 | 392.7 | 43.2 | 76.9 | 92.4 | 42.1 | 32.4 | 20.3 |
| AROMA ICS | | | | | | | | |
| BENZ E | 9.4 | 12.5 | 8.0 | 7.5 | 4.8 | 18.5 | 8.6 | 4.6 |
| TOLU E | 24.3 | 36.4 | 19.2 | 27.0 | 12.9 | 61.6 | 22.0 | 12.7 |
| ETHYL ENZENE | 3.9 | 6.8 | 3.2 | 3.9 | 2.6 | 7.9 | 3.4 | 1.9 |
| m&p-X LENE | 13.2 | 27.8 | 11.0 | 11.9 | 8.4 | 25.6 | 11.4 | 6.6 |
| o-XYL NE | 6.2 | 8.7 | 4.7 | 4.5 | 3.2 | 9.1 | 4.0 | 2.4 |
| n-PRO YLBENZENE | 1.5 | 1.7 | 0.9 | 1.6 | 1.5 | 2.5 | 0.9 | 0.5 |
| m-ETH LTOLUENE | 5.3 | 5.2 | 4.9 | 4.8 | 4.7 | 7.6 | 3.4 | 1.9 |
| p-ETH LTOLUENE | 2.6 | 3.7 | 2.2 | 2.7 | 2.7 | 4.4 | 2.4 | 1.3 |
| 1,3,5 TRIMETHYLBENZENE | 2.7 | 2.9 | 2.1 | 1.6 | 1.4 | 4.4 | 2.0 | 0.9 |
| o-ETH LTOLUENE | 3.2 | 3.8 | 2.3 | 3.0 | 2.5 | 4.3 | 2.2 | 1.2 |
| 1,2,4 TRIMETHYLBENZENE | 7.2 | 7.4 | 6.3 | 7.3 | 6.2 | 12.2 | 6.4 | 3.4 |
| n-DEC NE | 53.2 | 66.4 | * | 6.7 | 6.6 | 17.1 | * | 15.6 |
| 1,4-D ETHYLBENZENE | 3.0 | 3.3 | 0.5 | 2.0 | 2.4 | 4.0 | 2.5 | 1.2 |
| 1,2-D METHYL-3-ETHYLBENZENE | 3.0 | 2.9 | 1.1 | 3.3 | 3.4 | 2.6 | 1.9 | 1.1 |
| SUM C HER AROMATICS | 60.3 | 60.2 | 307.4 | 54.6 | 67.8 | 55.4 | 67.5 | 16.6 |
| SUMMA Y | | | | | | | | |
| ACETY ENE | 13.2 | 14.4 | 10.7 | 11.1 | 6.9 | 23.1 | 12.1 | 8.1 |
| SUM U KNOWNS | 2.4 | 12.2 | 14.1 | 7.0 | 10.2 | 53.4 | 19.5 | 3.8 |
| SUM I RAFFINS | 245.6 | 390.7 | 222.0 | 242.4 | 182.2 | 581.6 | 204.1 | 116.4 |
| SUM C EFINS | 119.1 | 453.5 | 98.4 | 134.0 | 126.6 | 144.7 | 73.2 | 51.3 |
| SUM A OMATICS | 199.7 | 250.3 | 374.4 | 142.9 | 131.8 | 237.9 | 139.2 | 72.4 |
| SUM H DROCARBONS | 580.7 | 1121.3 | 719.8 | 537.4 | 462.6 | 1040.9 | 448.4 | 252.1 |

TABLE A-35b. Hydrocarbon concentration data for RICHMOND, VA

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1400<br>84/07/25 | 1522<br>85/07/11 | 1561<br>84/08/03 | 1595<br>85/07/16 | 1653<br>84/08/09 | 1700<br>84/08/13 | 1723<br>85/07/24 | 1820<br>84/08/20 |
| PARAFFINS | | | | | | | | |
| ETHANE | 6.6 | 16.6 | 7.5 | 22.0 | 17.0 | 11.6 | 10.8 | 7.2 |
| PROPANE | 6.7 | 10.8 | 6.1 | 18.6 | 15.5 | 35.6 | 23.3 | 7.6 |
| ISOBUTANE | 5.5 | 9.4 | 4.7 | 11.8 | 12.3 | 8.7 | 22.6 | 2.2 |
| n-BUTANE | 24.8 | 46.0 | 20.9 | 53.7 | 53.3 | 36.7 | 106.8 | 8.4 |
| ISOPENTANE | 23.4 | 42.3 | 22.6 | 50.4 | 45.7 | 36.6 | 79.0 | 7.8 |
| n-PENTANE | 10.7 | 19.8 | 10.8 | 24.9 | 22.8 | 16.4 | 42.1 | 3.8 |
| 2,2-DIMETHYLBUTANE | 0.7 | 1.2 | 2.7 | 1.6 | 4.0 | 1.0 | 2.4 | 0.1 |
| CYCLOPENTANE | 0.9 | 2.1 | 1.0 | 2.0 | 1.9 | 1.4 | 3.0 | 0.3 |
| 2,3-DIMETHYLBUTANE | 1.9 | 3.7 | 2.0 | 4.5 | 4.0 | 3.1 | 5.3 | 0.6 |
| 2-METHYLPENTANE | 7.4 | 11.5 | 7.8 | 16.0 | 16.9 | 11.5 | 18.6 | 2.3 |
| 3-METHYLPENTANE | 6.4 | 7.6 | 6.7 | 10.6 | 15.0 | 9.8 | 11.1 | 1.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.9 | 7.8 | 5.5 | 10.3 | 15.4 | 7.4 | 11.7 | 1.7 |
| METHYLCYCLOPENTANE | 2.9 | 4.6 | 3.2 | 5.6 | 7.9 | 4.4 | 6.2 | 0.9 |
| 2,4-DIMETHYLPENTANE | 1.6 | 2.1 | 1.2 | 2.6 | 1.8 | 2.3 | 2.6 | 0.7 |
| CYCLOHEXANE | 0.6 | 0.9 | 0.5 | 1.3 | 24.6 | 1.0 | 1.3 | 0.2 |
| 2-METHYLHEXANE | 2.4 | 5.4 | 2.7 | 6.7 | 4.4 | 3.5 | 4.5 | 1.2 |
| 2,3-DIMETHYLPENTANE | 2.1 | * | 2.1 | 3.4 | 2.7 | 2.1 | 2.8 | * |
| 3-METHYLHEXANE | 2.8 | 4.5 | 4.4 | 5.7 | 6.4 | 3.9 | 4.9 | 0.7 |
| 2,2,4-TRIMETHYLPENTANE | 3.9 | 8.5 | 4.6 | 9.4 | 6.3 | 5.7 | 8.5 | 1.0 |
| n-HEPTANE | 2.3 | 3.7 | 2.3 | 4.9 | 29.1 | 3.2 | 3.5 | 0.6 |
| METHYLCYCLOHEXANE | 1.7 | 2.6 | 1.4 | 3.5 | 2.4 | 2.2 | 2.6 | 0.8 |
| 2,5-DIMETHYLHEXANE | 0.8 | 1.7 | 1.0 | 2.0 | 1.0 | 1.2 | 1.6 | 0.1 |
| 2,4-DIMETHYLHEXANE | 0.9 | 1.5 | 1.3 | 1.8 | 1.3 | 1.4 | 1.7 | 0.3 |
| 2,3,4-TRIMETHYLPENTANE | 1.2 | 2.5 | 1.4 | 4.2 | 1.9 | 1.9 | 2.8 | 0.4 |
| 2-METHYLHEPTANE | 0.9 | 2.1 | 1.4 | 2.8 | 1.3 | 1.6 | 1.9 | 0.5 |
| 3-METHYLHEPTANE | 1.2 | 1.8 | 1.3 | 2.6 | 1.8 | 1.7 | 1.8 | 0.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.4 | 1.1 | 0.5 | 1.2 | 0.7 | 0.7 | 1.1 | 0.1 |
| n-OCTANE | 1.3 | 2.0 | 1.2 | 2.5 | 1.7 | 1.9 | 2.1 | 0.3 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | 1.3 | * | 1.5 | * | 1.2 | 1.2 | 0.3 |
| 3-METHYLOCTANE | 0.6 | 1.6 | 0.5 | 2.3 | 1.0 | 0.8 | 1.5 | 0.1 |
| n-NONANE | 2.7 | 1.3 | 4.4 | 2.6 | 1.4 | 1.4 | 1.5 | 0.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 2.6 | 1.7 | 1.8 | 4.6 | 3.8 | 3.7 | 3.0 | 1.2 |
| SUM OF OTHER PARAFFINS | 30.9 | 31.2 | 26.1 | 41.7 | 119.9 | 41.2 | 27.6 | 19.9 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| **OLEFNS** |  |  |  |  |  |  |  |  |
| ETHYENE | 11.1 | 21.6 | 13.8 | 20.5 | 16.1 | 15.4 | 18.2 | 4.1 |
| PROPNE | 3.7 | 5.6 | 5.0 | 5.7 | 5.3 | 5.0 | 6.4 | 1.4 |
| 2-MEHYLPROPYLENE, BUTENE-1 | 3.9 | 6.0 | 4.2 | 5.9 | 5.5 | 4.9 | 7.5 | 1.5 |
| 1,3-UTADIENE | 0.7 | 1.0 | 1.1 | 1.2 | 1.1 | 0.6 | 1.1 | 0.2 |
| t-2-UTENE | 1.6 | 2.7 | 1.6 | 2.9 | 2.9 | 2.0 | 4.4 | 0.3 |
| c-2-UTENE | 1.2 | 1.9 | 1.1 | 2.2 | 2.3 | 1.7 | 3.4 | 0.2 |
| 1-PETENE | 1.3 | 1.9 | 0.9 | 3.1 | 1.6 | 2.1 | 3.7 | 0.4 |
| 2-MEHYL-1-BUTENE | 1.4 | 8.6 | 1.5 | 3.1 | 2.6 | 2.2 | 4.9 | 0.4 |
| ISOPENE | 6.4 | 2.9 | 8.2 | 4.1 | 4.9 | 2.2 | 3.7 | 0.4 |
| t-2-ENTENE | 1.6 | 3.1 | 1.7 | 3.8 | 13.1 | 2.2 | 5.3 | 0.4 |
| c-2-ENTENE | 1.5 | 3.8 | 0.4 | 4.5 | 2.6 | 1.3 | 5.4 | 0.1 |
| 2-MEHYL-1-PENTENE,1-HEXENE | 0.0 | 0.5 | * | 0.6 | * | 0.1 | 1.2 | 0.9 |
| 2-MEHYL-2-PENTENE | 0.4 | 0.9 | 0.7 | 1.1 | 1.0 | 0.8 | 1.2 | * |
| 2,2,-TRIMETHYL-1-BUTENE | 1.6 | 1.7 | 1.2 | 2.0 | 2.3 | 5.0 | 2.1 | 2.2 |
| a-PIENE | 4.3 | 2.9 | 3.3 | 1.9 | 5.6 | 2.8 | 4.8 | 1.2 |
| SUM THER OLEFINS | 50.4 | 34.1 | 42.7 | 30.0 | 84.8 | 50.4 | 33.5 | 44.3 |
| **AROMTICS** |  |  |  |  |  |  |  |  |
| BENZNE | 5.6 | 10.4 | 7.0 | 11.3 | 10.0 | 7.9 | 10.5 | 2.5 |
| TOLLNE | 18.9 | 32.3 | 18.6 | 38.1 | 242.5 | 36.5 | 31.1 | 5.6 |
| ETHYBENZENE | 2.9 | 4.6 | 3.3 | 5.3 | 4.9 | 3.9 | 4.4 | 1.0 |
| m&p-YLENE | 8.7 | 15.4 | 10.2 | 17.1 | 14.9 | 12.5 | 14.3 | 3.0 |
| o-XYENE | 3.2 | 5.9 | 3.8 | 7.2 | 5.0 | 4.3 | 5.1 | 1.3 |
| n-PROPYLBENZENE | 1.0 | 1.2 | 1.1 | 1.6 | 1.5 | 1.3 | 1.2 | 0.3 |
| m-ETYLTOLUENE | 3.2 | 4.7 | 4.1 | 5.5 | 5.3 | 4.0 | 4.6 | 1.3 |
| p-ETYLTOLUENE | 1.9 | 2.3 | 2.3 | 3.1 | 2.6 | 2.6 | 2.6 | 1.1 |
| 1,3,-TRIMETHYLBENZENE | 1.8 | 2.3 | 2.0 | 3.7 | 2.6 | 2.3 | 2.6 | 0.7 |
| o-ETYLTOLUENE | 2.0 | 2.5 | 2.1 | 2.9 | 2.6 | 2.5 | 2.3 | 0.9 |
| 1,2,-TRIMETHYLBENZENE | 5.2 | 8.2 | 6.4 | 11.2 | 6.9 | 6.6 | 7.9 | 2.8 |
| n-DEANE | 3.9 | 1.2 | 3.9 | 2.2 | 5.8 | 4.1 | 16.3 | 0.4 |
| 1,4-DIETHYLBENZENE | 1.6 | 2.4 | 1.2 | 2.3 | 2.1 | 2.2 | 2.1 | 1.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.1 | 1.5 | 1.9 | 2.6 | 3.0 | 2.2 | 1.3 | 1.4 |
| SUM OTHER AROMATICS | 27.7 | 29.2 | 27.1 | 29.0 | 117.3 | 39.0 | 19.9 | 16.4 |
| **SUMARY** |  |  |  |  |  |  |  |  |
| ACEYLENE | 7.1 | 14.5 | 8.9 | 15.5 | 12.0 | 9.9 | 11.0 | 4.9 |
| SUM UNKNOWNS | 2.6 | 6.5 | 4.4 | 6.6 | 4.4 | 4.3 | 11.1 | * |
| SUM PARAFFINS | 165.0 | 262.7 | 163.1 | 340.8 | 446.7 | 267.9 | 422.8 | 75.2 |
| SUM OLEFINS | 91.9 | 99.9 | 87.9 | 93.4 | 152.2 | 99.1 | 107.5 | 58.5 |
| SUM AROMATICS | 90.2 | 124.8 | 95.7 | 143.8 | 427.4 | 132.5 | 127.1 | 40.5 |
| SUM HYDROCARBONS | 357.0 | 508.4 | 360.1 | 600.2 | 1043.4 | 513.8 | 679.6 | 179.3 |

TABLE A-35c. Hydrocarbon concentration data for RICHMOND, VA

| Com ound | 1840<br>84/08/21 | 1922<br>85/08/02 | 1932<br>85/08/06 | 2113<br>85/08/16 | 2142<br>85/08/19 | 2177<br>84/09/11 | 2272<br>85/08/29 | 2324<br>84/09/20 |
|---|---|---|---|---|---|---|---|---|
| | ID Number and Sample Date | | | | | | | |
| PAR FFINS | | | | | | | | |
| ETH NE | 8.8 | 10.2 | 12.2 | 9.7 | 33.5 | 14.0 | 19.9 | 23.1 |
| PRO ANE | 8.4 | 9.4 | 8.8 | 5.9 | 13.8 | 19.0 | 10.9 | 11.7 |
| ISO UTANE | 4.6 | 5.7 | 9.1 | 5.7 | 4.9 | 4.9 | 8.8 | 6.3 |
| n- UTANE | 21.0 | 23.2 | 39.0 | 25.7 | 17.3 | 20.7 | 38.3 | 24.6 |
| I PENTANE | 20.8 | 24.5 | 39.2 | 28.6 | 19.8 | 23.4 | 42.6 | 28.7 |
| n-PENTANE | 10.1 | 10.2 | 18.6 | 11.6 | 8.5 | 10.6 | 17.8 | 13.1 |
| 2 2-DIMETHYLBUTANE | 0.6 | 0.6 | 1.1 | 0.7 | 0.4 | 0.7 | 1.4 | 1.3 |
| C CLOPENTANE | 0.8 | 0.9 | 1.7 | 1.2 | 0.7 | 0.9 | 2.3 | 1.2 |
| 2 3-DIMETHYLBUTANE | 1.8 | 2.1 | 3.4 | 2.4 | 1.7 | 2.2 | 3.6 | 2.9 |
| 2 METHYLPENTANE | 6.9 | 7.6 | 12.1 | 8.5 | 6.5 | 10.5 | 12.9 | 11.7 |
| 3 METHYLPENTANE | 5.4 | 4.8 | 12.1 | 5.7 | 5.0 | 4.8 | 8.0 | 7.9 |
| HEXANE,2-ETHYL-1-BUTENE | 4.9 | 5.0 | 7.7 | 4.9 | 5.4 | 5.7 | 7.4 | 6.9 |
| M THYLCYCLOPENTANE | 2.7 | 2.8 | 4.5 | 2.9 | 2.8 | 3.5 | 4.6 | 4.3 |
| 2 4-DIMETHYLPENTANE | 2.1 | 1.3 | 2.1 | 1.5 | 0.9 | 1.3 | 2.0 | 2.0 |
| C CLOHEXANE | 0.5 | 0.5 | * | 0.4 | 1.5 | 1.6 | 0.8 | 0.9 |
| 2 METHYLHEXANE | 1.0 | 6.9 | 6.5 | 7.1 | 6.8 | 4.2 | 8.1 | 4.0 |
| 2 3-DIMETHYLPENTANE | * | * | 3.4 | * | * | * | * | 2.9 |
| 3 METHYLHEXANE | 2.6 | 2.9 | 3.9 | 3.0 | 3.5 | 5.1 | 4.6 | 5.4 |
| 2 2,4-TRIMETHYLPENTANE | 3.4 | 4.6 | 7.7 | 4.3 | 3.0 | 3.9 | 7.4 | 6.8 |
| HEPTANE | 2.5 | 1.7 | 3.6 | 1.9 | 5.3 | 7.8 | 3.8 | 5.0 |
| M THYLCYCLOHEXANE | 1.5 | 1.4 | 2.2 | 1.1 | 6.3 | 7.6 | 2.2 | 2.0 |
| 2 5-DIMETHYLHEXANE | 0.7 | 1.0 | 1.5 | 1.1 | 0.4 | 1.7 | 1.7 | 1.5 |
| 2 4-DIMETHYLHEXANE | 0.9 | 1.0 | 1.6 | 1.0 | 1.0 | 1.6 | 1.6 | 1.6 |
| 2 3,4-TRIMETHYLPENTANE | 1.1 | 2.2 | 3.0 | 2.0 | 1.5 | 1.4 | 2.9 | 2.3 |
| 2 METHYLHEPTANE | 0.9 | 0.8 | 2.4 | 0.6 | 2.2 | 2.6 | 2.1 | 1.9 |
| 3 METHYLHEPTANE | 1.2 | 1.4 | 2.2 | 1.3 | 1.6 | 2.3 | 2.2 | 1.9 |
| ,2,5-TRIMETHYLHEXANE | 0.4 | 0.6 | 1.0 | 0.5 | 0.4 | 0.6 | 1.0 | 0.8 |
| -OCTANE | 1.7 | 1.7 | 2.3 | * | 3.6 | 1.3 | 2.8 | 1.4 |
| ,4-DIMETHYLHEPTANE | * | * | 0.6 | 0.2 | 0.5 | * | * | 0.1 |
| -METHYLOCTANE | * | 1.0 | 1.5 | 0.6 | 0.8 | 0.8 | 1.4 | * |
| -METHYLOCTANE | 0.6 | 1.0 | 1.2 | 0.4 | 0.9 | 0.5 | 0.9 | 0.9 |
| -NONANE | 1.7 | 1.8 | 2.0 | 0.8 | 1.2 | 1.0 | 2.2 | 1.2 |
| -METHYLNONANE | * | * | * | * | * | * | * | * |
| -DECANE | 3.7 | 2.1 | 3.1 | 1.3 | 1.4 | 2.1 | 2.1 | 2.2 |
| UM OTHER PARAFFINS | 44.5 | 18.2 | 52.8 | 16.7 | 25.4 | 23.9 | 24.6 | 30.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| LEFINS | | | | | | | | |
| THYLENE | 11.2 | 15.8 | 21.2 | 14.2 | 13.7 | 13.8 | 25.2 | 18.4 |
| ROPENE | 2.8 | 3.4 | 5.8 | 4.2 | 3.3 | 3.7 | 6.5 | 5.3 |
| -METHYLPROPYLENE, BUTENE-1 | 3.2 | * | 5.7 | 3.6 | 2.8 | 3.2 | 6.3 | 3.9 |
| ,3-BUTADIENE | 0.5 | 0.3 | 0.8 | 0.8 | 0.4 | 0.4 | 1.6 | 0.7 |
| -2-BUTENE | 1.1 | 0.7 | 2.4 | 1.5 | 0.9 | 1.0 | 2.8 | 1.0 |
| -2-BUTENE | 0.8 | 0.5 | 1.9 | 1.2 | 0.7 | 0.9 | 2.0 | 0.9 |
| -PENTENE | 0.7 | 0.8 | 1.7 | 1.1 | 0.8 | 0.9 | 1.7 | 0.9 |
| -METHYL-1-BUTENE | 1.1 | 1.0 | 2.5 | 1.8 | 1.2 | 1.4 | 2.7 | 1.7 |
| SOPRENE | 5.7 | 2.5 | 1.2 | 3.5 | 1.0 | 1.3 | 6.7 | 0.9 |
| -2-PENTENE | 1.2 | 0.9 | 3.0 | 2.0 | 1.3 | 1.8 | 3.1 | 1.9 |
| -2-PENTENE | 1.1 | 1.8 | 3.4 | 2.5 | 1.7 | 2.6 | 4.1 | 2.7 |
| -METHYL-1-PENTENE, 1-HEXENE | 0.1 | * | 0.2 | 0.2 | 0.1 | 0.1 | 1.1 | 0.1 |
| -METHYL-2-PENTENE | 0.3 | 0.4 | 2.7 | 0.6 | 0.4 | 1.0 | 1.1 | 0.9 |
| ,2,3-TRIMETHYL-1-BUTENE | 7.5 | 1.7 | 3.3 | 0.9 | 2.4 | 3.8 | 3.6 | 0.7 |
| -PINENE | 3.3 | 4.9 | 0.8 | 0.4 | 2.8 | 11.7 | 0.3 | 1.1 |
| UM OTHER OLEFINS | 48.5 | 15.3 | 19.9 | 7.5 | 13.9 | 34.8 | 14.6 | 35.4 |
| ROMATICS | | | | | | | | |
| ENZENE | 5.6 | 6.8 | 10.1 | 6.9 | 4.9 | 5.8 | 11.2 | 9.1 |
| OLUENE | 18.8 | 20.1 | 93.1 | 19.4 | 32.3 | 38.4 | 34.3 | 24.4 |
| THYLBENZENE | 2.9 | 3.0 | 4.6 | 2.9 | 2.2 | 3.4 | 5.3 | 4.4 |
| &p-XYLENE | 8.6 | 10.2 | 16.0 | 9.7 | 8.5 | 11.5 | 17.8 | 14.6 |
| -XYLENE | 3.3 | 4.5 | 6.1 | 4.9 | 3.6 | 4.0 | 6.7 | 5.4 |
| -PROPYLBENZENE | 1.0 | 0.8 | 1.4 | * | 0.5 | 0.7 | 1.4 | 1.4 |
| -ETHYLTOLUENE | 3.0 | 3.1 | 5.4 | 2.5 | 1.9 | 3.5 | 4.6 | 5.3 |
| -ETHYLTOLUENE | 2.4 | 1.7 | 2.6 | 0.8 | 0.8 | 2.0 | 1.5 | 2.8 |
| ,3,5-TRIMETHYLBENZENE | 1.9 | 2.0 | 3.7 | 1.4 | 1.2 | 1.9 | 2.9 | 3.0 |
| -ETHYLTOLUENE | 2.0 | 1.6 | 2.7 | 1.6 | 1.2 | 2.0 | 2.6 | 2.7 |
| ,2,4-TRIMETHYLBENZENE | 5.0 | 5.7 | 12.2 | 9.8 | 4.6 | 5.5 | 15.2 | 8.4 |
| -DECANE | 1.2 | 1.4 | 1.8 | 0.9 | 0.6 | 3.2 | 2.7 | 5.4 |
| ,4-DIETHYLBENZENE | 1.7 | 1.3 | 2.1 | 1.3 | 1.0 | 1.6 | 2.2 | 2.5 |
| ,2-DIMETHYL-3-ETHYLBENZENE | 1.9 | * | 2.5 | * | 0.9 | 2.2 | 1.4 | 2.2 |
| UM OTHER AROMATICS | 23.5 | 15.9 | 27.3 | 8.9 | 10.6 | 29.3 | 28.0 | 31.3 |
| UMMARY | | | | | | | | |
| CETYLENE | 6.0 | 6.9 | 13.5 | 8.4 | 6.9 | 6.8 | 13.9 | 12.6 |
| UM UNKNOWNS | 0.2 | 1.6 | 3.1 | 1.6 | 3.1 | 1.7 | 9.6 | 0.9 |
| UM PARAFFINS | 169.3 | 160.6 | 275.3 | 160.8 | 189.9 | 193.6 | 254.3 | 220.0 |
| UM OLEFINS | 89.6 | 50.8 | 77.2 | 46.7 | 47.9 | 82.9 | 84.0 | 77.1 |
| UM AROMATICS | 83.4 | 78.8 | 192.2 | 71.6 | 75.3 | 115.5 | 138.3 | 123.4 |
| UM HYDROCARBONS | 348.7 | 298.9 | 561.4 | 289.5 | 323.2 | 400.6 | 500.3 | 434.1 |

TABLE A-36a. Hydrocarbon concentration data for SALT LAKE CITY 1, UT

| Compound | ID Number and Sample Date<br>1314RA0<br>86/06/19 | 1396<br>86/06/25 | 1430<br>86/07/02 | 1529<br>86/07/03 | 1566<br>86/07/07 | 1800<br>86/07/21 | 1844<br>86/07/22 | 2000<br>86/07/30 |
|---|---|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | | | |
| ETHANE | 11.2 | 35.1 | 57.4 | 28.0 | 15.7 | 30.0 | 20.4 | 83.6 |
| PROPANE | 39.4 | 116.3 | 125.9 | 112.1 | 59.7 | 85.3 | 102.7 | 345.5 |
| ISOBUTANE | 27.2 | 99.4 | 98.3 | 46.5 | 37.2 | 58.7 | 27.9 | 55.0 |
| n-BUTANE | 51.2 | 90.3 | 161.0 | 92.4 | 74.6 | 122.0 | 76.2 | 120.1 |
| ISOPENTANE | 47.2 | 78.2 | 141.4 | 68.0 | 64.7 | 104.0 | 47.4 | 134.1 |
| n-PENTANE | 20.0 | 43.8 | 73.9 | 38.8 | 35.9 | 55.1 | 28.3 | 76.0 |
| 2,2-DIMETHYLBUTANE | 0.9 | 1.9 | 3.3 | 1.7 | 1.2 | 2.3 | 1.1 | 3.7 |
| CYCLOPENTANE | 1.2 | 2.7 | 3.9 | 2.4 | 1.7 | 3.3 | 1.5 | 4.5 |
| 2,3-DIMETHYLBUTANE | 4.8 | 8.4 | 15.5 | 6.5 | 6.1 | 11.0 | 5.0 | 14.4 |
| 2-METHYLPENTANE | 12.4 | 25.1 | 46.2 | 20.2 | 16.4 | 31.4 | 15.3 | 45.0 |
| 3-METHYLPENTANE | 9.8 | 18.2 | 28.1 | 11.9 | 10.9 | 22.5 | 10.6 | 27.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 10.3 | 23.7 | 40.9 | 18.1 | 15.7 | 29.3 | 14.4 | 39.5 |
| METHYLCYCLOPENTANE | 4.9 | 10.7 | 19.2 | 8.0 | 7.1 | 13.4 | 6.8 | 18.6 |
| 2,4-DIMETHYLPENTANE | 4.1 | 7.2 | 14.4 | 5.2 | 5.3 | 9.8 | 5.3 | 13.4 |
| CYCLOHEXANE | 3.8 | 9.9 | 14.6 | 7.3 | 6.2 | 12.2 | 6.4 | 14.0 |
| 2-METHYLHEXANE | * | * | * | * | * | * | * | 18.6 |
| 2,3-DIMETHYLPENTANE | 12.2 | 27.5 | 45.3 | 24.4 | 16.6 | 28.7 | 23.5 | 24.7 |
| 3-METHYLHEXANE | 5.4 | 11.3 | 19.8 | 9.6 | 6.1 | 12.0 | 8.2 | 20.1 |
| 2,2,4-TRIMETHYLPENTANE | 7.0 | 13.4 | 32.8 | 9.8 | 8.5 | 16.9 | 10.1 | 32.9 |
| n-HEPTANE | 6.9 | 15.5 | 21.9 | 8.7 | 9.8 | 18.5 | 7.9 | 21.4 |
| METHYLCYCLOHEXANE | 5.0 | 11.0 | 19.5 | 9.1 | 8.3 | 14.4 | 7.8 | 17.0 |
| 2,5-DIMETHYLHEXANE | 1.5 | 2.7 | 5.6 | 2.1 | 1.9 | 3.7 | 2.0 | 6.1 |
| 2,4-DIMETHYLHEXANE | 1.6 | 2.9 | 6.3 | 2.2 | 1.9 | 3.9 | 2.1 | 6.9 |
| 2,3,4-TRIMETHYLPENTANE | 4.6 | 5.5 | 11.5 | 4.2 | 3.8 | 7.6 | 4.3 | 12.6 |
| 2-METHYLHEPTANE | 3.3 | 6.6 | 9.6 | 6.1 | 4.0 | 8.4 | 4.7 | 9.4 |
| 3-METHYLHEPTANE | 3.0 | 5.1 | 10.1 | 4.2 | 2.7 | 6.4 | 3.2 | 10.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.7 | 2.5 | 4.0 | 2.5 | 1.7 | 2.8 | 2.4 | 4.2 |
| n-OCTANE | 3.7 | 7.0 | 15.3 | 5.9 | 5.5 | 10.0 | 5.6 | 13.9 |
| 2,4-DIMETHYLHEPTANE | 2.5 | 1.4 | 1.2 | * | 1.0 | 1.1 | * | 2.8 |
| 4-METHYLOCTANE | 1.7 | 3.8 | 6.6 | 2.4 | 2.6 | 5.2 | 2.0 | 5.6 |
| 3-METHYLOCTANE | 2.7 | 2.7 | 4.8 | 2.6 | 1.6 | 3.7 | 2.2 | 4.9 |
| n-NONANE | 3.5 | 5.3 | 10.4 | 6.1 | 3.8 | 7.1 | 4.4 | 10.2 |
| 4-METHYLNONANE | 2.3 | * | 2.4 | * | * | * | * | 2.9 |
| n-DECANE | 2.9 | 9.0 | 13.3 | 10.1 | 5.4 | 9.8 | 10.4 | 14.4 |
| SUM OTHER PARAFFINS | 62.9 | 56.2 | 89.2 | 68.7 | 28.1 | 66.4 | 53.5 | 91.0 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 8.7 | 23.8 | 46.9 | 19.2 | 11.0 | 20.6 | 10.1 | 58.1 |
| PROPENE | 6.9 | 191.4 | 46.4 | 38.1 | 8.1 | 16.2 | 6.5 | 32.5 |
| 2-METHYLPROPYLENE,BUTENE-1 | 20.5 | 62.6 | 25.7 | 21.9 | 11.6 | 17.1 | 10.3 | 21.4 |
| 1,3-BUTADIENE | 0.5 | 1.9 | 2.1 | 0.8 | 0.2 | 1.0 | 0.6 | 5.7 |
| t-2-BUTENE | 7.1 | 26.0 | 12.1 | 8.9 | 5.1 | 9.2 | 3.7 | 10.8 |
| c-2-BUTENE | 5.3 | 16.8 | 9.0 | 6.4 | 4.2 | 6.9 | 2.7 | 7.8 |
| 1-PENTENE | 2.9 | 3.0 | 6.1 | 2.9 | 2.2 | 3.7 | 1.9 | 5.3 |
| 2-METHYL-1-BUTENE | 4.7 | 4.8 | 10.4 | 4.1 | 3.6 | 6.7 | 4.6 | 8.7 |
| ISOPRENE | 0.8 | 1.3 | 2.5 | 3.4 | 0.6 | 1.8 | 0.5 | 2.6 |
| t-2-PENTENE | 5.0 | 5.8 | 10.1 | 4.4 | 4.1 | 6.8 | 2.8 | 9.3 |
| c-2-PENTENE | 6.0 | 10.6 | 13.4 | * | 6.1 | 9.3 | * | * |
| 2-METHYL-1-PENTENE,1-HEXENE | 4.7 | * | 3.9 | * | 0.8 | * | * | 8.4 |
| 2-METHYL-2-PENTENE | 1.7 | 2.3 | 4.3 | 1.7 | 1.6 | 3.0 | 1.3 | 4.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.0 | 2.1 | 2.4 | 2.1 | 0.8 | 2.1 | 1.8 | 2.4 |
| a-PINENE | 3.8 | 3.5 | 0.9 | 6.9 | * | * | 6.6 | * |
| SUM OTHER OLEFINS | 30.1 | 35.9 | 60.2 | 44.1 | 16.6 | 44.7 | 53.1 | 71.9 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 9.5 | 18.8 | 35.8 | 14.5 | 10.6 | 22.4 | 10.9 | 40.4 |
| TOLUENE | 22.4 | 45.7 | 99.0 | 42.3 | 28.4 | 52.0 | 35.1 | 105.1 |
| ETHYLBENZENE | 2.5 | 6.8 | 11.8 | 8.6 | 3.3 | 6.9 | 7.0 | 13.7 |
| m&p-XYLENE | 11.6 | 27.3 | 50.5 | 29.9 | 14.9 | 30.0 | 23.5 | 58.1 |
| o-XYLENE | 7.2 | 10.6 | 18.5 | 11.7 | 4.9 | 11.8 | 8.9 | 20.6 |
| n-PROPYLBENZENE | 0.4 | 1.0 | 2.0 | 0.7 | 0.4 | 2.2 | 1.4 | 2.7 |
| m-ETHYLTOLUENE | 1.8 | 4.3 | 9.0 | 4.2 | 2.5 | 5.9 | 4.1 | 10.6 |
| p-ETHYLTOLUENE | 1.6 | 2.4 | 5.3 | 2.2 | 1.5 | 3.6 | 2.4 | 6.2 |
| 1,3,5-TRIMETHYLBENZENE | 1.9 | 3.9 | 5.6 | 4.1 | 3.1 | 5.5 | 3.7 | 6.6 |
| o-ETHYLTOLUENE | 1.3 | 2.5 | 5.0 | 2.3 | 1.4 | 3.3 | 2.6 | 5.8 |
| 1,2,4-TRIMETHYLBENZENE | 7.5 | 13.7 | 22.5 | 9.7 | 8.6 | 16.9 | 9.6 | 26.7 |
| n-DECANE | 1.8 | 2.8 | 4.8 | 3.3 | 1.3 | 4.0 | 3.3 | 3.9 |
| 1,4-DIETHYLBENZENE | 1.0 | 2.2 | 2.7 | 1.8 | 1.0 | 2.8 | 1.7 | 3.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.1 | 4.4 | 7.7 | 4.5 | 2.7 | 6.9 | 5.0 | 8.7 |
| SUM OTHER AROMATICS | 33.8 | 55.7 | 45.0 | 96.3 | 26.6 | 47.9 | 78.6 | 52.1 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 4.3 | 13.2 | 35.9 | 10.0 | 5.7 | 16.4 | 6.9 | 38.1 |
| SUM UNKNOWNS | 22.6 | 6.7 | 7.1 | 33.0 | 2.6 | 2.0 | 31.4 | 4.4 |
| SUM PARAFFINS | 383.2 | 761.8 | 1175.2 | 647.0 | 473.5 | 818.3 | 525.1 | 1326.2 |
| SUM OLEFINS | 110.4 | 392.6 | 256.9 | 165.6 | 77.2 | 149.8 | 107.4 | 249.5 |
| SUM AROMATICS | 107.9 | 202.7 | 325.8 | 236.9 | 112.0 | 222.8 | 198.4 | 365.2 |
| SUM HYDROCARBONS | 628.5 | 1377.2 | 1801.1 | 1092.6 | 671.0 | 1209.4 | 869.3 | 1983.5 |

## TABLE A-36b. Hydrocarbon concentration data for SALT LAKE CITY 1, UT

| Compound | ID Number and Sample Date<br>2274<br>86/08/14 | 2378<br>86/08/19 | 2652<br>86/09/04 | 2759<br>86/09/12 | 2870<br>86/09/19 | 2906<br>86/09/23 |
|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | |
| ETHANE | 76.6 | 29.4 | 42.4 | 22.4 | 48.3 | 66.2 |
| PROPANE | 257.3 | 189.4 | 115.6 | 58.6 | 254.7 | 121.7 |
| ISOBUTANE | 156.8 | 112.9 | 63.4 | 31.0 | 113.5 | 51.4 |
| n-BUTANE | 275.9 | 131.7 | 63.6 | 63.5 | 136.0 | 80.3 |
| ISOPENTANE | 277.8 | 88.4 | 74.6 | 76.5 | 94.2 | 106.1 |
| n-PENTANE | 174.8 | 42.5 | 38.5 | 44.4 | 55.0 | 55.9 |
| 2,2-DIMETHYLBUTANE | 6.6 | 1.6 | 1.9 | 1.9 | 2.6 | 3.2 |
| CYCLOPENTANE | 8.9 | 2.0 | 2.3 | 2.2 | 3.1 | 3.4 |
| 2,3-DIMETHYLBUTANE | 20.7 | 8.2 | 8.4 | 7.1 | 11.0 | 11.3 |
| 2-METHYLPENTANE | 73.4 | 23.2 | 26.5 | 23.6 | 34.8 | 37.9 |
| 3-METHYLPENTANE | 42.1 | 14.9 | 19.8 | 15.5 | 22.6 | 23.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 63.7 | 18.9 | 21.6 | 50.2 | 35.4 | 32.5 |
| METHYLCYCLOPENTANE | 26.3 | 9.2 | 10.7 | 10.9 | 15.7 | 15.6 |
| 2,4-DIMETHYLPENTANE | 14.6 | 7.5 | 8.4 | 6.9 | 12.2 | 10.8 |
| CYCLOHEXANE | 21.5 | 7.4 | 7.3 | 8.3 | 14.1 | 10.7 |
| 2-METHYLHEXANE | 21.3 | * | * | * | 15.6 | 15.8 |
| 2,3-DIMETHYLPENTANE | 24.9 | 21.7 | 26.5 | 22.5 | 24.3 | 19.1 |
| 3-METHYLHEXANE | 22.7 | 9.4 | 12.3 | 10.3 | 18.4 | 17.3 |
| 2,2,4-TRIMETHYLPENTANE | 33.9 | 11.5 | 16.0 | 13.8 | 25.1 | 22.5 |
| n-HEPTANE | 29.4 | 12.1 | 11.8 | 13.1 | 26.1 | 18.5 |
| METHYLCYCLOHEXANE | 25.3 | 9.2 | 8.2 | 10.7 | 20.2 | 11.3 |
| 2,5-DIMETHYLHEXANE | 5.9 | 2.8 | 3.5 | 3.5 | 6.6 | 4.8 |
| 2,4-DIMETHYLHEXANE | 6.2 | 2.9 | 3.9 | 3.4 | 6.7 | 5.5 |
| 2,3,4-TRIMETHYLPENTANE | 10.4 | 5.0 | 7.2 | 5.9 | 12.3 | 9.4 |
| 2-METHYLHEPTANE | 10.6 | 6.1 | 6.1 | 6.9 | 11.1 | 8.6 |
| 3-METHYLHEPTANE | 10.4 | 4.6 | 6.7 | 5.5 | 11.2 | 9.7 |
| 2,2,5-TRIMETHYLHEXANE | 3.9 | 2.2 | 2.8 | 3.1 | 5.6 | 3.5 |
| n-OCTANE | 16.7 | 8.1 | 8.4 | 8.8 | 16.1 | 9.5 |
| 2,4-DIMETHYLHEPTANE | 2.2 | 2.0 | 0.9 | 1.1 | 2.8 | 2.5 |
| 4-METHYLOCTANE | 6.7 | 3.3 | 3.4 | 4.6 | 7.8 | 6.9 |
| 3-METHYLOCTANE | 5.2 | 3.0 | 3.6 | 2.8 | 5.1 | 5.0 |
| n-NONANE | 16.0 | 7.5 | 5.6 | 7.0 | 14.2 | 10.8 |
| 4-METHYLNONANE | 3.8 | 1.8 | * | * | * | * |
| n-DECANE | 36.1 | 12.8 | 7.9 | 7.6 | 12.6 | 12.0 |
| SUM OTHER PARAFFINS | 99.9 | 45.7 | 44.6 | 50.2 | 103.4 | 81.4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| OLEFINS | | | | | | |
| ETHYLENE | 45.7 | 21.6 | 37.0 | 35.1 | 50.8 | 59.1 |
| PROPENE | 39.0 | 121.9 | 17.7 | 9.9 | 38.0 | 24.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 26.4 | 43.3 | 10.9 | 8.9 | 18.5 | 15.9 |
| 1,3-BUTADIENE | 2.4 | 0.5 | 1.1 | 1.4 | 3.1 | 5.4 |
| t-2-BUTENE | 17.8 | 17.7 | 3.3 | 4.7 | 7.7 | 7.1 |
| c-2-BUTENE | 12.9 | 13.4 | 3.0 | 3.7 | 5.7 | 5.1 |
| 1-PENTENE | 13.1 | 3.6 | 2.7 | 2.5 | 3.8 | 4.0 |
| 2-METHYL-1-BUTENE | 14.9 | 6.3 | 4.5 | 4.2 | 6.5 | 7.0 |
| ISOPRENE | 2.1 | 0.8 | 1.2 | 2.0 | 1.4 | 2.6 |
| t-2-PENTENE | 15.4 | 6.6 | 4.8 | 4.5 | 8.5 | 7.1 |
| c-2-PENTENE | 21.8 | 8.6 | 6.8 | 6.8 | 10.4 | 10.5 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 2.2 | * | 1.9 | 1.9 | 2.6 |
| 2-METHYL-2-PENTENE | 4.9 | 2.3 | 2.1 | 1.9 | 3.5 | 3.0 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.3 | 2.1 | 1.3 | 1.2 | 1.7 | 3.0 |
| a-PINENE | 1.9 | * | * | * | * | 1.0 |
| SUM OTHER OLEFINS | 68.1 | 27.1 | 39.2 | 23.4 | 43.9 | 45.6 |
| AROMATICS | | | | | | |
| BENZENE | 41.8 | 16.1 | 28.9 | 20.4 | 34.9 | 38.9 |
| TOLUENE | 98.5 | 39.8 | 65.1 | 51.8 | 90.9 | 105.3 |
| ETHYLBENZENE | 11.8 | 5.1 | 8.5 | 6.5 | 12.1 | 14.4 |
| m&p-XYLENE | 51.9 | 23.0 | 36.5 | 29.6 | 54.3 | 61.7 |
| o-XYLENE | 17.7 | 9.0 | 15.7 | 8.8 | 18.8 | 19.7 |
| n-PROPYLBENZENE | 3.2 | 1.1 | 2.2 | 1.3 | 2.4 | 2.7 |
| m-ETHYLTOLUENE | 10.3 | 4.2 | 6.5 | 5.4 | 9.5 | 11.1 |
| p-ETHYLTOLUENE | 6.7 | 2.7 | 3.5 | 3.3 | 5.7 | 6.2 |
| 1,3,5-TRIMETHYLBENZENE | 7.6 | 2.8 | 5.2 | 5.0 | 8.8 | 9.1 |
| o-ETHYLTOLUENE | 6.5 | 3.0 | 3.5 | 3.0 | 5.2 | 5.7 |
| 1,2,4-TRIMETHYLBENZENE | 23.7 | 25.4 | 20.0 | 13.4 | 22.3 | 25.4 |
| n-DECANE | 6.8 | 2.7 | 2.3 | 2.5 | 3.3 | 3.9 |
| 1,4-DIETHYLBENZENE | 3.9 | 1.5 | 2.1 | 1.8 | 3.9 | 3.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 10.4 | 5.9 | 4.7 | 4.1 | 6.7 | 5.8 |
| SUM OTHER AROMATICS | 57.5 | 28.2 | 40.7 | 19.3 | 36.8 | 49.0 |
| SUMMARY | | | | | | |
| ACETYLENE | 31.0 | 12.6 | 30.9 | 9.8 | 27.6 | 55.1 |
| SUM UNKNOWNS | 6.1 | 1.7 | 4.0 | 1.0 | 4.5 | 3.3 |
| SUM PARAFFINS | 1889.7 | 860.4 | 685.9 | 605.3 | 1199.6 | 905.9 |
| SUM OLEFINS | 289.3 | 278.9 | 136.2 | 112.7 | 205.8 | 204.2 |
| SUM AROMATICS | 359.0 | 171.3 | 246.0 | 176.8 | 316.2 | 362.8 |
| SUM HYDROCARBONS | 2575.4 | 1325.2 | 1103.2 | 905.8 | 1753.9 | 1531.5 |

TABLE A-37a. Hydrocarbon concentration data for SALT LAKE CITY 2, UT

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1328<br>86/06/20 | 1397<br>86/06/24 | 1565<br>86/07/07 | 1722<br>86/07/16 | 1799<br>86/07/21 | 1843<br>86/07/22 | 1972<br>86/07/29 | 2198<br>86/08/11 |
| PARAFFINS | | | | | | | | |
| ETHANE | 17.4 | 60.9 | 5.1 | 10.3 | 40.1 | 18.6 | 16.4 | 46.8 |
| PROPANE | 17.6 | 66.1 | 5.1 | 7.4 | 19.6 | 16.3 | 13.4 | 29.8 |
| ISOBUTANE | 12.2 | 47.6 | 5.0 | 11.0 | 14.1 | 9.8 | 10.6 | 19.1 |
| n-BUTANE | 39.8 | 95.3 | 18.9 | 22.5 | 43.0 | 30.3 | 36.3 | 57.2 |
| ISOPENTANE | 52.3 | 117.0 | 25.5 | 30.9 | 65.6 | 43.2 | 50.6 | 88.5 |
| n-PENTANE | 26.1 | 60.4 | 13.2 | 15.4 | 36.3 | 22.8 | 24.4 | 45.0 |
| 2,2-DIMETHYLBUTANE | 1.3 | 2.8 | 0.6 | 0.7 | 1.9 | 1.2 | 1.1 | 2.2 |
| CYCLOPENTANE | 1.4 | 3.5 | 0.8 | 0.8 | 2.2 | 1.2 | 1.3 | 2.8 |
| 2,3-DIMETHYLBUTANE | 5.1 | 10.9 | 2.5 | 3.1 | 7.4 | 4.7 | 5.1 | 9.4 |
| 2-METHYLPENTANE | 17.2 | 36.8 | 8.3 | 10.0 | 24.5 | 15.9 | 16.5 | 31.3 |
| 3-METHYLPENTANE | 12.0 | 23.2 | 5.7 | 6.7 | 16.7 | 10.8 | 11.3 | 19.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 14.4 | 31.6 | 6.6 | 7.9 | 20.7 | 13.7 | 12.1 | 25.6 |
| METHYLCYCLOPENTANE | 6.6 | 14.1 | 3.0 | 3.6 | 9.8 | 6.3 | 6.3 | 12.5 |
| 2,4-DIMETHYLPENTANE | 4.3 | 8.9 | 2.2 | 2.6 | 6.9 | 4.4 | 4.3 | 8.3 |
| CYCLOHEXANE | 4.4 | 9.9 | 2.0 | 2.6 | 6.8 | 4.4 | 4.5 | 8.7 |
| 2-METHYLHEXANE | * | * | * | * | 9.4 | * | * | 11.7 |
| 2,3-DIMETHYLPENTANE | 13.0 | 29.2 | 9.0 | 8.4 | 13.0 | 14.6 | 14.2 | 16.6 |
| 3-METHYLHEXANE | 6.9 | 14.9 | 5.1 | 4.5 | 10.8 | 7.3 | 6.9 | 14.3 |
| 2,2,4-TRIMETHYLPENTANE | 9.6 | 22.8 | 4.8 | 5.2 | 14.6 | 9.2 | 8.6 | 18.2 |
| n-HEPTANE | 8.2 | 18.0 | 2.6 | 4.9 | 12.8 | 6.4 | 9.8 | 13.4 |
| METHYLCYCLOHEXANE | 4.9 | 11.6 | 2.1 | 2.7 | 7.1 | 4.9 | 6.7 | 8.5 |
| 2,5-DIMETHYLHEXANE | 1.9 | 3.9 | 1.0 | 0.5 | 3.0 | 2.0 | 2.4 | 3.6 |
| 2,4-DIMETHYLHEXANE | 2.1 | 4.3 | 1.1 | 1.2 | 3.5 | 2.1 | 2.3 | 4.2 |
| 2,3,4-TRIMETHYLPENTANE | 3.7 | 7.2 | 4.0 | 1.9 | 5.6 | 3.5 | 3.4 | 7.0 |
| 2-METHYLHEPTANE | 3.9 | 9.3 | 1.0 | * | 4.6 | 4.5 | 4.9 | 5.4 |
| 3-METHYLHEPTANE | 3.2 | 7.6 | 2.5 | 1.7 | 5.2 | 3.3 | 3.7 | 6.0 |
| 2,2,5-TRIMETHYLHEXANE | 1.2 | 2.6 | 0.6 | 0.9 | 1.7 | 0.7 | 1.0 | 1.7 |
| n-OCTANE | 3.7 | 10.8 | 2.6 | 2.2 | 6.2 | 5.9 | 3.3 | 7.6 |
| 2,4-DIMETHYLHEPTANE | 2.0 | 2.3 | 1.9 | 0.6 | 2.1 | 0.8 | 0.8 | 1.7 |
| 4-METHYLOCTANE | 2.7 | 5.5 | 1.4 | 1.6 | 4.1 | 3.0 | 3.2 | 3.7 |
| 3-METHYLOCTANE | 2.1 | 3.8 | 2.4 | 1.0 | 2.7 | 2.1 | 2.2 | 3.2 |
| n-NONANE | 2.9 | 7.6 | 2.3 | 1.4 | 3.4 | 3.6 | 3.7 | 4.1 |
| 4-METHYLNONANE | * | * | 2.1 | * | * | * | * | * |
| n-DECANE | 3.3 | 10.6 | 3.5 | 2.7 | 4.4 | 4.9 | 5.7 | 5.6 |
| SUM OTHER PARAFFINS | 32.8 | 76.9 | 35.6 | 11.2 | 29.0 | 31.9 | 31.7 | 37.8 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 32.2 | 38.7 | 9.0 | 12.0 | 37.3 | 22.1 | 20.7 | 44.1 |
| PROPENE | 7.4 | 16.4 | 3.8 | 4.2 | 12.1 | 7.7 | 6.7 | 14.6 |
| 2-METHYLPROPYLENE, BUTENE-1 | 8.4 | 11.8 | 3.9 | 4.3 | 10.0 | 6.7 | 7.0 | 10.6 |
| 1,3-BUTADIENE | 1.2 | 2.5 | 0.7 | 0.8 | 2.3 | 1.5 | 0.3 | 1.3 |
| t-2-BUTENE | 2.9 | 6.3 | 1.9 | 2.0 | 4.1 | 2.9 | 2.4 | 3.6 |
| c-2-BUTENE | 2.2 | 4.7 | 1.5 | 1.6 | 3.0 | 2.2 | 2.6 | 3.6 |
| 1-PENTENE | 1.8 | 3.8 | 0.8 | 1.1 | 2.5 | 1.6 | 1.7 | 1.6 |
| 2-METHYL-1-BUTENE | 2.9 | 6.1 | 1.6 | 1.8 | 3.8 | 3.0 | 3.1 | 5.4 |
| ISOPRENE | 2.1 | 2.1 | 0.7 | 0.8 | 2.2 | 2.5 | 0.6 | 2.2 |
| t-2-PENTENE | 2.8 | 6.0 | 2.0 | 2.1 | 4.2 | 3.1 | 2.6 | 5.0 |
| c-2-PENTENE | 4.0 | 8.2 | * | 2.8 | 5.6 | 4.7 | 5.0 | 7.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 5.9 | 0.4 | 0.4 | 1.5 | 0.7 | * | 0.3 |
| 2-METHYL-2-PENTENE | 1.0 | 2.1 | 0.8 | 0.7 | 1.7 | 1.2 | 1.2 | 2.1 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.4 | 2.6 | 0.4 | 0.7 | 1.0 | 2.4 | 1.5 | 1.3 |
| a-PINENE | * | * | 4.0 | * | * | * | * | * |
| SUM OTHER OLEFINS | 16.1 | 26.1 | 17.0 | 7.4 | 20.8 | 12.3 | 14.2 | 21.7 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 16.9 | 30.7 | 9.8 | 9.7 | 26.1 | 16.6 | 14.2 | 30.9 |
| TOLUENE | 40.1 | 74.0 | 18.5 | 23.0 | 60.0 | 47.7 | 62.1 | 73.7 |
| ETHYLBENZENE | 5.1 | 9.8 | 2.2 | 2.7 | 7.7 | 5.8 | 7.1 | 10.6 |
| m&p-XYLENE | 21.2 | 39.2 | 11.8 | 12.6 | 35.3 | 25.6 | 28.5 | 45.3 |
| o-XYLENE | 7.4 | 15.0 | 7.3 | 4.2 | 11.9 | 8.5 | 9.2 | 16.3 |
| n-PROPYLBENZENE | 0.8 | 3.2 | 0.7 | 0.5 | 1.5 | 0.9 | 1.3 | 1.8 |
| m-ETHYLTOLUENE | 3.8 | 7.9 | 2.4 | 2.6 | 7.3 | 4.8 | 4.7 | 8.9 |
| p-ETHYLTOLUENE | 2.1 | 5.0 | 1.6 | 1.4 | 4.0 | 2.7 | 2.8 | 4.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.8 | 6.6 | * | 1.7 | 4.9 | 3.8 | 3.7 | 6.2 |
| o-ETHYLTOLUENE | 2.1 | 4.5 | 1.3 | 1.4 | 3.6 | 2.4 | 2.5 | 4.2 |
| 1,2,4-TRIMETHYLBENZENE | 12.7 | 21.3 | 7.2 | 9.4 | 20.1 | 15.7 | 15.2 | 24.4 |
| n-DECANE | 1.7 | 4.2 | * | 1.0 | 2.3 | 1.6 | 1.5 | 3.7 |
| 1,4-DIETHYLBENZENE | 1.0 | 3.3 | * | 0.9 | 2.2 | 1.7 | 1.6 | 3.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.4 | * | 3.3 | 0.8 | 2.5 | 2.2 | 2.5 | 3.3 |
| SUM OTHER AROMATICS | 18.5 | 36.6 | 14.0 | 4.8 | 29.1 | 17.1 | 16.6 | 39.1 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 9.9 | 29.9 | 6.9 | 10.8 | 30.6 | 19.7 | 17.6 | 36.4 |
| SUM UNKNOWNS | 1.0 | 2.0 | 18.9 | 1.0 | 4.6 | * | 4.1 | 2.2 |
| SUM PARAFFINS | 341.7 | 839.1 | 191.5 | 189.7 | 460.5 | 315.6 | 330.0 | 582.4 |
| SUM OLEFINS | 87.0 | 144.1 | 49.2 | 43.3 | 112.6 | 75.2 | 70.1 | 125.4 |
| SUM AROMATICS | 138.3 | 261.8 | 80.4 | 77.3 | 219.2 | 157.8 | 174.2 | 276.8 |
| SUM HYDROCARBONS | 578.0 | 1277.0 | 347.0 | 322.2 | 827.8 | 568.4 | 596.2 | 1023.5 |

TABLE A-37b. Hydrocarbon concentration data for SALT LAKE CITY 2, UT

| Compound | ID Number and Sample Date | | | | |
|---|---|---|---|---|---|
| | 2277<br>86/08/14 | 2379<br>86/08/20 | 2477<br>86/08/26 | 2653<br>86/09/04 | 2748<br>86/09/11 |
| PARAFFINS | | | | | |
| ETHANE | 39.9 | 21.1 | 80.1 | 42.8 | 47.0 |
| PROPANE | 24.1 | 13.6 | 48.3 | 37.9 | 34.2 |
| ISOBUTANE | 17.9 | 10.4 | 31.5 | 21.7 | 17.8 |
| n-BUTANE | 51.7 | 27.7 | 86.3 | 61.6 | 50.7 |
| ISOPENTANE | 80.4 | 43.5 | 125.2 | 93.4 | 80.3 |
| n-PENTANE | 41.8 | 22.1 | 64.9 | 50.6 | 42.7 |
| 2,2-DIMETHYLBUTANE | 2.1 | 1.2 | 3.9 | 2.7 | 2.6 |
| CYCLOPENTANE | 2.5 | 1.2 | 4.1 | 3.1 | 2.7 |
| 2,3-DIMETHYLBUTANE | 8.5 | 4.7 | 14.0 | 10.8 | 10.2 |
| 2-METHYLPENTANE | 28.4 | 16.0 | 47.5 | 36.0 | 34.1 |
| 3-METHYLPENTANE | 17.5 | 11.9 | 30.1 | 22.8 | 21.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 23.2 | 13.4 | 40.5 | 29.1 | 28.6 |
| METHYLCYCLOPENTANE | 11.4 | 6.6 | 19.3 | 14.4 | 14.1 |
| 2,4-DIMETHYLPENTANE | 7.6 | 4.4 | 12.6 | 9.9 | 10.4 |
| CYCLOHEXANE | 8.0 | 4.4 | 12.4 | 10.5 | 9.3 |
| 2-METHYLHEXANE | 11.6 | * | 20.1 | 15.8 | 15.7 |
| 2,3-DIMETHYLPENTANE | 13.9 | 14.4 | 22.7 | 18.9 | 21.4 |
| 3-METHYLHEXANE | 12.6 | 7.1 | 22.1 | 18.1 | 18.4 |
| 2,2,4-TRIMETHYLPENTANE | 19.7 | 9.2 | 30.9 | 25.2 | 25.8 |
| n-HEPTANE | 14.8 | 8.2 | 20.9 | 15.9 | 16.2 |
| METHYLCYCLOHEXANE | 8.4 | 4.5 | 13.6 | 9.2 | 9.1 |
| 2,5-DIMETHYLHEXANE | 3.5 | 2.0 | 5.5 | 4.5 | 4.7 |
| 2,4-DIMETHYLHEXANE | 4.1 | 2.1 | 6.4 | 5.3 | 5.3 |
| 2,3,4-TRIMETHYLPENTANE | 6.4 | 3.9 | 10.3 | 8.4 | 9.1 |
| 2-METHYLHEPTANE | 5.8 | 2.9 | 9.5 | 7.1 | 7.1 |
| 3-METHYLHEPTANE | 6.8 | 3.1 | 11.1 | 7.9 | 8.2 |
| 2,2,5-TRIMETHYLHEXANE | 2.3 | 1.2 | 3.8 | 3.0 | 3.8 |
| n-OCTANE | 8.8 | 4.3 | 8.6 | 10.3 | 9.8 |
| 2,4-DIMETHYLHEPTANE | 1.3 | 1.4 | 1.8 | 2.5 | 1.8 |
| 4-METHYLOCTANE | 4.7 | 2.6 | 7.6 | 6.2 | 6.3 |
| 3-METHYLOCTANE | 3.1 | 2.0 | 5.7 | 4.4 | 4.2 |
| n-NONANE | 3.8 | 2.6 | 10.3 | 6.8 | 4.5 |
| 4-METHYLNONANE | * | * | * | * | * |
| n-DECANE | 5.7 | 3.4 | 14.6 | 9.3 | 5.5 |
| SUM OTHER PARAFFINS | 36.6 | 21.6 | 96.0 | 54.6 | 51.9 |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |
| ETHYLENE | 40.3 | 22.4 | 61.3 | 50.2 | 84.5 |
| PROPENE | 14.3 | 7.7 | 23.9 | 16.0 | 21.1 |
| 2-METHYLPROPYLENE, BUTENE-1 | 10.0 | 6.0 | 16.5 | 11.3 | 13.4 |
| 1,3-BUTADIENE | 1.7 | 0.7 | 5.3 | 1.3 | 4.6 |
| t-2-BUTENE | 4.0 | 2.4 | 8.0 | 3.6 | 5.2 |
| c-2-BUTENE | 3.5 | 1.9 | 5.8 | 3.4 | 3.6 |
| 1-PENTENE | 2.8 | 1.6 | 4.7 | 3.2 | 4.2 |
| 2-METHYL-1-BUTENE | 4.3 | 2.7 | 9.4 | 4.9 | 6.5 |
| ISOPRENE | 2.1 | 1.7 | 3.2 | 2.1 | 2.2 |
| t-2-PENTENE | 4.9 | 2.7 | 8.8 | 5.5 | 5.8 |
| c-2-PENTENE | 7.0 | 4.0 | 13.6 | 11.4 | 8.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.3 | * | 5.6 | 2.2 | 1.5 |
| 2-METHYL-2-PENTENE | 1.9 | 1.1 | 3.4 | 2.5 | 2.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.0 | 0.8 | 3.0 | 1.4 | 1.6 |
| a-PINENE | * | 1.0 | 1.0 | * | * |
| SUM OTHER OLEFINS | 23.5 | 14.4 | 48.5 | 34.2 | 38.0 |
| AROMATICS |  |  |  |  |  |
| BENZENE | 28.7 | 14.9 | 47.1 | 38.2 | 39.5 |
| TOLUENE | 68.0 | 41.2 | 125.1 | 91.2 | 92.6 |
| ETHYLBENZENE | 9.7 | 5.2 | 17.5 | 13.1 | 13.1 |
| m&p-XYLENE | 43.5 | 25.1 | 73.7 | 56.6 | 58.5 |
| o-XYLENE | 15.4 | 9.5 | 25.9 | 20.9 | 21.1 |
| n-PROPYLBENZENE | 1.7 | 0.9 | 3.6 | 3.9 | 2.1 |
| m-ETHYLTOLUENE | 8.6 | 4.9 | 13.7 | 11.1 | 11.2 |
| p-ETHYLTOLUENE | 4.6 | 2.5 | 7.5 | 6.1 | 5.8 |
| 1,3,5-TRIMETHYLBENZENE | 6.0 | 3.4 | 7.2 | 7.8 | 7.6 |
| o-ETHYLTOLUENE | 4.1 | 2.4 | 7.2 | 5.6 | 5.3 |
| 1,2,4-TRIMETHYLBENZENE | 21.1 | 16.7 | 28.9 | 24.8 | 25.4 |
| n-DECANE | 3.3 | 1.9 | 7.5 | 3.5 | 5.0 |
| 1,4-DIETHYLBENZENE | 3.4 | 1.6 | 4.5 | 3.4 | 3.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.9 | 2.3 | 8.6 | 4.6 | 3.4 |
| SUM OTHER AROMATICS | 44.2 | 23.0 | 73.3 | 33.8 | 36.3 |
| SUMMARY |  |  |  |  |  |
| ACETYLENE | 38.8 | 19.0 | 62.5 | 49.9 | 38.1 |
| SUM UNKNOWNS | 1.1 | 2.3 | 3.1 | 1.8 | 0.5 |
| SUM PARAFFINS | 540.3 | 300.6 | 943.7 | 682.3 | 636.4 |
| SUM OLEFINS | 123.2 | 71.6 | 222.7 | 153.7 | 204.7 |
| SUM AROMATICS | 265.8 | 156.1 | 452.0 | 325.3 | 331.0 |
| SUM HYDROCARBONS | 969.4 | 549.8 | 1684.2 | 1213.1 | 1211.0 |

## TABLE A-38a. Hydrocarbon concentration data for ST LOUIS, MO

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1011 85/06/03 | 1106 85/06/12 | 1243 85/06/20 | 1339 85/06/28 | 1453 85/07/03 | 1617 85/07/18 | 1718 85/07/23 | 1825 85/07/29 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 17.2 | 11.9 | 17.4 | 9.0 | 23.2 | 32.6 | 7.0 | 56.9 |
| PROPANE | 12.8 | 8.6 | 19.7 | 6.1 | 35.9 | 164.1 | 20.9 | 51.3 |
| ISOBUTANE | 8.3 | 6.9 | 12.0 | 4.5 | 20.6 | 20.6 | 6.6 | 27.7 |
| n-BUTANE | 38.3 | 29.5 | 57.0 | 17.9 | 47.3 | 104.0 | 18.4 | 97.1 |
| ISOPENTANE | 28.5 | 23.9 | 47.6 | 16.9 | 36.4 | 78.1 | 13.6 | 97.2 |
| n-PENTANE | 15.9 | 12.2 | 24.1 | 9.8 | 18.7 | 30.2 | 8.3 | 45.4 |
| 2,2-DIMETHYLBUTANE | 1.3 | 1.1 | 1.6 | 0.5 | 1.3 | 1.9 | 0.3 | 3.3 |
| CYCLOPENTANE | 1.5 | 1.2 | 2.2 | 0.7 | 1.5 | 2.4 | 0.5 | 3.8 |
| 2,3-DIMETHYLBUTANE | 3.3 | 2.7 | 4.8 | 1.7 | 4.0 | 4.9 | 1.1 | 9.0 |
| 2-METHYLPENTANE | 13.9 | 9.2 | 16.2 | 6.4 | 16.2 | 18.5 | 5.2 | 31.2 |
| 3-METHYLPENTANE | 10.9 | 7.0 | 16.1 | 4.2 | 19.0 | 23.2 | 5.0 | 25.3 |
| n-HEXANE,2-ETHYL-1-BUTENE | 14.8 | 6.9 | 11.9 | 6.2 | 22.3 | 15.4 | 8.2 | 27.8 |
| METHYLCYCLOPENTANE | 6.6 | 4.0 | 6.6 | 3.1 | 9.7 | 7.7 | 2.6 | 12.8 |
| 2,4-DIMETHYLPENTANE | 3.4 | 2.9 | 4.5 | 1.6 | 4.0 | 3.3 | 0.9 | 7.2 |
| CYCLOHEXANE | 1.7 | 1.1 | 2.0 | 0.8 | 3.3 | 4.0 | 0.7 | 3.5 |
| 2-METHYLHEXANE | 5.3 | 4.4 | 5.1 | 3.3 | 7.3 | 4.5 | 5.4 | 11.4 |
| 2,3-DIMETHYLPENTANE | 4.8 | 4.4 | 6.8 | 3.1 | 5.4 | 4.7 | * | 12.2 |
| 3-METHYLHEXANE | 9.1 | 5.7 | 6.2 | 3.0 | 7.2 | 7.4 | 2.2 | 11.1 |
| 2,2,4-TRIMETHYLPENTANE | 9.8 | 8.4 | 13.6 | 5.4 | 10.7 | 11.0 | 2.9 | 20.8 |
| n-HEPTANE | 5.7 | 3.8 | 5.0 | 2.5 | 7.4 | 7.1 | 1.6 | 8.0 |
| METHYLCYCLOHEXANE | 3.0 | 1.9 | 3.3 | 1.4 | 5.5 | 6.6 | 1.3 | 4.8 |
| 2,5-DIMETHYLHEXANE | 1.8 | 1.4 | 2.1 | 0.9 | 2.1 | 1.9 | 0.6 | 3.4 |
| 2,4-DIMETHYLHEXANE | 2.4 | 1.9 | 2.4 | 0.9 | 2.4 | 1.8 | 0.5 | 4.0 |
| 2,3,4-TRIMETHYLPENTANE | 2.7 | 2.6 | 4.3 | 2.3 | 4.6 | 3.1 | 1.9 | 6.7 |
| 2-METHYLHEPTANE | 2.2 | 1.1 | 2.3 | 1.2 | 2.9 | 2.2 | 0.6 | 4.1 |
| 3-METHYLHEPTANE | 2.5 | 1.6 | 2.5 | 1.2 | 2.9 | 2.4 | 1.0 | 4.4 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.7 | 1.1 | 0.5 | 5.3 | 1.3 | 0.2 | 2.3 |
| n-OCTANE | 2.2 | 2.2 | 2.7 | * | 5.4 | * | 1.4 | 7.0 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | 1.4 | 1.9 | 1.0 | 2.3 | 1.7 | 0.4 | 3.8 |
| 3-METHYLOCTANE | 1.0 | 0.9 | 1.7 | 1.1 | 2.3 | 1.9 | 0.9 | 3.1 |
| n-NONANE | 34.8 | 2.6 | 2.6 | 1.2 | 3.6 | 2.8 | 1.4 | 5.7 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 5.5 | 3.1 | 7.0 | 2.4 | 18.2 | 22.0 | 5.7 | 14.5 |
| SUM OTHER PARAFFINS | 67.7 | 49.2 | 44.9 | 31.0 | 56.6 | 63.4 | 12.8 | 70.1 |

OLEFINS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ETHYLENE | 13.5 | 14.2 | 25.7 | 12.2 | 18.5 | 21.7 | 5.4 | 31.4 |
| PROPENE | 3.6 | 5.3 | 7.5 | 3.4 | 9.5 | 6.7 | 1.9 | 11.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.8 | 4.1 | 6.1 | 2.7 | 6.0 | 5.5 | 1.9 | 11.1 |
| 1,3-BUTADIENE | 0.7 | 0.9 | 1.6 | 0.6 | 1.7 | 1.3 | 0.1 | 1.4 |
| t-2-BUTENE | 1.4 | 1.4 | 2.9 | 0.9 | 2.2 | 3.0 | 0.4 | 3.9 |
| c-2-BUTENE | 1.0 | 1.0 | 2.1 | 0.6 | 1.6 | 2.0 | 0.3 | 3.1 |
| 1-PENTENE | 1.2 | 0.9 | 1.8 | 0.6 | 1.5 | 2.1 | 0.3 | 3.8 |
| 2-METHYL-1-BUTENE | 1.5 | 1.3 | 2.7 | 0.7 | 2.0 | 2.7 | 0.5 | 4.8 |
| ISOPRENE | 2.0 | 1.1 | 4.3 | 1.3 | 10.1 | 0.6 | 0.7 | 2.2 |
| t-2-PENTENE | 1.9 | 1.5 | 3.3 | 1.1 | 2.1 | * | 0.6 | 5.4 |
| c-2-PENTENE | 1.5 | 2.7 | 4.5 | 1.5 | 1.9 | * | 0.9 | 6.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.4 | 0.2 | 1.4 | 0.1 | * | 1.3 | * | 1.6 |
| 2-METHYL-2-PENTENE | 1.1 | 0.9 | 1.3 | 0.3 | 1.4 | 0.8 | 0.3 | 1.8 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.7 | 2.2 | 2.3 | 1.4 | 6.8 | 4.1 | 1.4 | 4.2 |
| a-PINENE | 13.0 | 3.1 | * | 2.4 | 8.6 | 3.9 | 2.4 | 4.4 |
| SUM OTHER OLEFINS | 48.5 | 42.8 | 31.6 | 21.0 | 36.5 | 26.5 | 20.4 | 49.0 |

AROMATICS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BENZENE | 9.5 | 7.8 | 14.3 | 5.7 | 11.7 | 69.0 | 3.8 | 26.1 |
| TOLUENE | 49.4 | 36.8 | 42.4 | 37.0 | 116.0 | 60.4 | 15.8 | 88.9 |
| ETHYLBENZENE | 6.1 | 5.2 | 6.8 | 6.1 | 9.6 | 10.7 | 2.5 | 12.6 |
| m&p-XYLENE | 21.1 | 18.0 | 24.3 | 21.5 | 31.6 | 33.9 | 9.1 | 42.1 |
| o-XYLENE | 8.3 | 6.6 | 7.6 | 7.4 | 11.1 | 12.6 | 4.7 | 14.5 |
| n-PROPYLBENZENE | 1.8 | 1.8 | 1.5 | 0.6 | 2.0 | 2.3 | 0.4 | 3.5 |
| m-ETHYLTOLUENE | 6.3 | 4.8 | 5.5 | 2.7 | 5.7 | 7.5 | 1.9 | 10.5 |
| p-ETHYLTOLUENE | 2.7 | 3.1 | 3.0 | 1.6 | 4.0 | 3.4 | 1.2 | 5.8 |
| 1,3,5-TRIMETHYLBENZENE | 2.7 | 2.9 | 4.3 | 1.6 | 4.1 | 5.1 | 1.6 | 7.5 |
| o-ETHYLTOLUENE | 4.1 | 2.8 | 3.0 | 1.5 | 3.8 | 4.0 | 0.9 | 5.8 |
| 1,2,4-TRIMETHYLBENZENE | 7.4 | 6.4 | 9.8 | 5.0 | 10.4 | 12.1 | 3.9 | 18.0 |
| n-DECANE | * | 86.4 | 2.8 | 41.2 | 10.7 | 3.0 | 0.6 | 5.2 |
| 1,4-DIETHYLBENZENE | 2.8 | 1.9 | 3.4 | 1.7 | 3.2 | 3.4 | 0.8 | 4.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.8 | 2.4 | 17.9 | 1.2 | 7.5 | 3.9 | * | 6.7 |
| SUM OTHER AROMATICS | 332.7 | 60.1 | 66.6 | 14.1 | 44.3 | 49.7 | 21.7 | 61.6 |

SUMMARY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ACETYLENE | 6.4 | 13.2 | 16.2 | 6.3 | 15.2 | 17.5 | 4.4 | 29.9 |
| SUM UNKNOWNS | 25.2 | 4.9 | 5.1 | 2.0 | 25.1 | 28.0 | 31.3 | 6.8 |
| SUM PARAFFINS | 340.9 | 227.4 | 360.8 | 153.2 | 416.7 | 658.2 | 141.5 | 698.3 |
| SUM OLEFINS | 98.5 | 84.3 | 99.6 | 51.6 | 111.0 | 82.7 | 38.4 | 147.2 |
| SUM AROMATICS | 459.3 | 247.6 | 213.9 | 149.4 | 276.2 | 281.7 | 69.6 | 313.6 |
| SUM HYDROCARBONS | 930.9 | 577.6 | 696.8 | 362.7 | 847.1 | 1068.3 | 285.4 | 1195.9 |

TABLE A-38b. Hydrocarbon concentration data for ST LOUIS, MO

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1894 85/08/02 | 1934 85/08/06 | 1985 85/08/08 | 2053 85/08/14 | 2127 85/08/19 | 2297 85/08/27 | 2394 85/09/06 | 2449 85/09/10 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 10.5 | 15.6 | 18.1 | 14.1 | 7.5 | 35.9 | 9.9 | 7.8 |
| PROPANE | 13.9 | 14.3 | 25.3 | 63.6 | 8.4 | 78.1 | 10.8 | 9.2 |
| ISOBUTANE | 7.1 | 9.2 | 21.2 | 7.9 | 3.7 | 21.5 | 12.1 | 6.0 |
| n-BUTANE | 26.2 | 32.8 | 63.6 | 43.9 | 14.4 | 78.8 | 43.9 | 17.7 |
| ISOPENTANE | 23.6 | 34.2 | 60.2 | 47.9 | 19.0 | 80.1 | 39.6 | 21.3 |
| n-PENTANE | 11.6 | 16.8 | 25.9 | 16.5 | 8.7 | 37.5 | 15.9 | 8.9 |
| 2,2-DIMETHYLBUTANE | 0.6 | * | 1.7 | 1.4 | 0.5 | 2.5 | 1.0 | 0.4 |
| CYCLOPENTANE | 1.0 | 2.0 | 2.2 | 1.7 | 0.7 | 3.2 | 1.7 | 1.0 |
| 2,3-DIMETHYLBUTANE | 2.3 | 2.9 | 5.0 | 3.2 | 1.9 | 7.7 | 3.3 | 2.1 |
| 2-METHYLPENTANE | 8.7 | 10.1 | 17.7 | 11.7 | 6.4 | 26.4 | 11.8 | 7.5 |
| 3-METHYLPENTANE | 6.3 | 6.4 | 11.6 | 7.2 | 4.7 | 16.3 | 7.4 | 5.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 10.1 | 6.8 | 17.1 | 8.3 | 4.3 | 39.7 | 7.4 | 5.9 |
| METHYLCYCLOPENTANE | 4.4 | 3.5 | 7.2 | 4.3 | 2.4 | 12.8 | 4.0 | 2.9 |
| 2,4-DIMETHYLPENTANE | 1.8 | 2.1 | 3.7 | 2.3 | 1.4 | 6.9 | 2.5 | 1.7 |
| CYCLOHEXANE | 0.8 | 0.8 | 2.0 | 1.0 | 0.5 | 2.6 | 0.9 | 0.6 |
| 2-METHYLHEXANE | 3.4 | 4.9 | 6.3 | 5.4 | 3.2 | 12.5 | 6.6 | 10.5 |
| 2,3-DIMETHYLPENTANE | 3.0 | 3.5 | 6.7 | 3.9 | 2.9 | 10.3 | 4.7 | * |
| 3-METHYLHEXANE | 3.0 | 3.8 | 6.2 | 4.4 | 2.6 | 10.4 | 4.4 | 3.5 |
| 2,2,4-TRIMETHYLPENTANE | 5.5 | 5.9 | 10.5 | 6.8 | 4.0 | 18.4 | 6.9 | 5.0 |
| n-HEPTANE | 2.0 | 2.3 | 5.0 | 3.6 | 1.5 | 9.0 | 2.7 | 2.2 |
| METHYLCYCLOHEXANE | 1.4 | 1.5 | 4.0 | 2.3 | 1.2 | 6.4 | 2.1 | 1.8 |
| 2,5-DIMETHYLHEXANE | 1.0 | 1.3 | 1.9 | 1.7 | 0.8 | 3.5 | 1.4 | 1.0 |
| 2,4-DIMETHYLHEXANE | 1.0 | 1.3 | 2.1 | 1.4 | 0.8 | 3.8 | 1.4 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 1.8 | 2.3 | 3.5 | 2.2 | 1.6 | 6.1 | 2.6 | 2.1 |
| 2-METHYLHEPTANE | 1.5 | 1.4 | 2.6 | 1.6 | 0.6 | 4.3 | 0.9 | 0.8 |
| 3-METHYLHEPTANE | 1.7 | 1.7 | 2.6 | 1.9 | 1.2 | 4.6 | 1.9 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.6 | 0.8 | 1.6 | 0.6 | 0.4 | 2.3 | 0.7 | 0.8 |
| n-OCTANE | 2.1 | * | 4.4 | * | 1.0 | 6.1 | 2.4 | 2.3 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | 1.0 | * | 1.1 | 0.6 |
| 4-METHYLOCTANE | 2.4 | 0.9 | 4.2 | 1.1 | 0.6 | 4.2 | 0.9 | 1.5 |
| 3-METHYLOCTANE | 2.4 | 0.9 | 3.4 | 0.9 | 0.3 | 3.2 | 1.0 | 0.8 |
| n-NONANE | 4.9 | 1.6 | 9.5 | 1.5 | 0.7 | 6.3 | 1.3 | 2.2 |
| 4-METHYLNONANE | 2.3 | * | 0.6 | * | * | 0.2 | * | * |
| n-DECANE | 11.8 | 6.7 | 21.6 | 4.6 | 5.4 | 25.5 | 3.6 | 6.8 |
| SUM OTHER PARAFFINS | 43.4 | 19.2 | 62.6 | 42.7 | 10.8 | 106.8 | 27.8 | 28.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** | | | | | | | | |
| ETHYLENE | 16.6 | 16.1 | 19.1 | 13.4 | 9.4 | 49.4 | 14.5 | 10.5 |
| PROPENE | 4.0 | 10.9 | 7.9 | 5.4 | 3.3 | 12.4 | 4.9 | 4.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.8 | 4.6 | 6.1 | 4.4 | 2.9 | 11.5 | 5.2 | 3.1 |
| 1,3-BUTADIENE | 0.3 | 0.7 | 0.8 | 1.1 | 0.7 | 2.0 | 0.8 | 0.7 |
| t-2-BUTENE | 0.8 | 1.9 | 2.2 | 2.1 | 0.9 | 4.7 | 2.6 | 1.1 |
| c-2-BUTENE | 0.6 | 1.5 | 2.1 | 1.5 | 0.7 | 3.5 | 2.1 | 0.8 |
| 1-PENTENE | 0.7 | 1.3 | 2.2 | 1.5 | 0.7 | 3.6 | 1.5 | 0.8 |
| 2-METHYL-1-BUTENE | 1.2 | 1.6 | 2.8 | 2.0 | 1.2 | 4.7 | 2.6 | 1.3 |
| ISOPRENE | 1.2 | 2.5 | 1.6 | 0.9 | 0.4 | 1.9 | 3.1 | 1.9 |
| t-2-PENTENE | * | 2.4 | 3.3 | 2.6 | 1.4 | 5.9 | 2.8 | 1.5 |
| c-2-PENTENE | 1.9 | 3.2 | 3.7 | 3.7 | 1.7 | 7.6 | 4.1 | 2.1 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.9 | 0.4 | 1.3 | 1.9 | 0.1 | 2.4 | 0.6 | * |
| 2-METHYL-2-PENTENE | 0.5 | 0.7 | 1.0 | 0.9 | 0.5 | 2.5 | 1.0 | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.4 | 1.7 | 2.5 | 4.8 | 1.4 | 21.4 | 1.0 | 1.7 |
| a-PINENE | 2.9 | 0.1 | 0.9 | 2.1 | 0.0 | 3.1 | 0.1 | 0.9 |
| SUM OTHER OLEFINS | 16.3 | 17.7 | 19.1 | 16.3 | 4.5 | 48.9 | 14.8 | 8.4 |
| **AROMATICS** | | | | | | | | |
| BENZENE | 10.5 | 9.4 | 24.4 | 51.3 | 5.3 | 72.6 | 9.7 | 7.0 |
| TOLUENE | 24.7 | 36.0 | 81.9 | 41.0 | 17.6 | 85.3 | 35.5 | 42.4 |
| ETHYLBENZENE | 4.2 | 3.6 | 6.9 | 7.1 | 2.5 | 13.2 | 4.1 | 4.7 |
| m&p-XYLENE | 14.1 | 12.0 | 23.2 | 23.9 | 8.7 | 41.0 | 13.7 | 16.8 |
| o-XYLENE | 6.3 | 5.0 | 8.3 | 8.4 | 3.5 | 13.9 | 5.7 | 6.8 |
| n-PROPYLBENZENE | 1.1 | 0.9 | 1.1 | 1.6 | * | 2.3 | 1.0 | 0.8 |
| m-ETHYLTOLUENE | 4.1 | 3.6 | 4.9 | 7.3 | 1.9 | 9.4 | 4.0 | 3.7 |
| p-ETHYLTOLUENE | 3.4 | 1.9 | 3.5 | 2.9 | 0.6 | 3.9 | 2.0 | 2.2 |
| 1,3,5-TRIMETHYLBENZENE | 3.3 | 2.1 | 1.8 | 3.7 | 1.0 | 3.3 | 2.5 | 2.9 |
| o-ETHYLTOLUENE | 4.1 | 1.7 | 5.7 | 2.3 | 1.2 | 6.4 | 2.0 | 2.3 |
| 1,2,4-TRIMETHYLBENZENE | 7.7 | 7.7 | 7.8 | 10.6 | 11.5 | 10.7 | 7.3 | 6.7 |
| n-DECANE | 2.8 | 1.1 | 4.3 | 2.3 | 0.6 | 5.7 | 1.2 | 1.2 |
| 1,4-DIETHYLBENZENE | 2.3 | 1.4 | 3.5 | 1.8 | 0.9 | 5.2 | 1.7 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.9 | 1.7 | 11.9 | 2.6 | 1.2 | 12.1 | 2.7 | 2.7 |
| SUM OTHER AROMATICS | 62.5 | 17.3 | 63.1 | 42.8 | 11.7 | 69.8 | 18.2 | 12.3 |
| **SUMMARY** | | | | | | | | |
| ACETYLENE | 8.3 | 8.5 | 15.5 | 25.4 | 7.9 | 31.2 | 13.4 | 9.7 |
| SUM UNKNOWNS | 4.6 | 1.5 | 7.2 | 2.6 | 1.2 | 5.3 | 3.0 | 6.0 |
| SUM PARAFFINS | 225.7 | 218.8 | 443.4 | 323.4 | 126.6 | 695.4 | 248.2 | 172.8 |
| SUM OLEFINS | 53.8 | 67.9 | 77.2 | 65.4 | 30.4 | 186.2 | 62.3 | 40.0 |
| SUM AROMATICS | 156.7 | 105.9 | 253.1 | 210.3 | 68.8 | 355.3 | 111.9 | 114.6 |
| SUM HYDROCARBONS | 449.2 | 402.8 | 796.5 | 627.2 | 235.0 | 1273.6 | 439.0 | 343.2 |

## TABLE A-38c. Hydrocarbon concentration data for ST LOUIS, MO

| Compound | ID Number and Sample Date<br>2534<br>85/09/16 | <br>2614<br>85/09/25 |
|---|---|---|
| PARAFFINS | | |
| ETHANE | 26.4 | 11.4 |
| PROPANE | 102.0 | 13.6 |
| ISOBUTANE | 22.8 | 6.3 |
| n-BUTANE | 144.4 | 26.2 |
| ISOPENTANE | 106.8 | 25.1 |
| n-PENTANE | 30.0 | 11.4 |
| 2,2-DIMETHYLBUTANE | 26.0 | 0.9 |
| CYCLOPENTANE | 3.3 | 0.9 |
| 2,3-DIMETHYLBUTANE | 6.8 | 2.3 |
| 2-METHYLPENTANE | 24.5 | 8.4 |
| 3-METHYLPENTANE | 14.0 | 5.5 |
| n-HEXANE,2-ETHYL-1-BUTENE | 15.7 | 12.3 |
| METHYLCYCLOPENTANE | 8.0 | 3.9 |
| 2,4-DIMETHYLPENTANE | 3.8 | 1.8 |
| CYCLOHEXANE | 2.2 | 0.6 |
| 2-METHYLHEXANE | 7.8 | 9.7 |
| 2,3-DIMETHYLPENTANE | 7.2 | * |
| 3-METHYLHEXANE | 7.7 | 3.6 |
| 2,2,4-TRIMETHYLPENTANE | 11.9 | 5.0 |
| n-HEPTANE | 5.9 | 2.3 |
| METHYLCYCLOHEXANE | 3.5 | 1.5 |
| 2,5-DIMETHYLHEXANE | 2.1 | 0.9 |
| 2,4-DIMETHYLHEXANE | 2.2 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 4.4 | 1.7 |
| 2-METHYLHEPTANE | 2.7 | 1.3 |
| 3-METHYLHEPTANE | 3.1 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.1 | 0.6 |
| n-OCTANE | * | 1.5 |
| 2,4-DIMETHYLHEPTANE | 1.3 | 0.5 |
| 4-METHYLOCTANE | 1.8 | 0.9 |
| 3-METHYLOCTANE | 1.5 | 0.6 |
| n-NONANE | 2.1 | 2.6 |
| 4-METHYLNONANE | * | 1.0 |
| n-DECANE | 6.3 | 10.4 |
| SUM OTHER PARAFFINS | 54.6 | 25.5 |

OLEFINS

| | | |
|---|---|---|
| ETHYLENE | 23.5 | 13.1 |
| PROPENE | 9.3 | 4.2 |
| 2-METHYLPROPYLENE, BUTENE-1 | 0.2 | 4.3 |
| 1,3-BUTADIENE | 1.8 | 0.7 |
| t-2-BUTENE | 6.0 | 1.3 |
| c-2-BUTENE | 4.4 | 1.0 |
| 1-PENTENE | 3.4 | 0.9 |
| 2-METHYL-1-BUTENE | 5.0 | 1.4 |
| ISOPRENE | 1.8 | 0.6 |
| t-2-PENTENE | 5.7 | 2.2 |
| c-2-PENTENE | 0.2 | 2.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 4.8 | 0.1 |
| 2-METHYL-2-PENTENE | 1.5 | 0.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 7.7 | 1.8 |
| a-PINENE | 2.8 | 1.9 |
| SUM OTHER OLEFINS | 29.2 | 7.1 |

AROMATICS

| | | |
|---|---|---|
| BENZENE | 37.8 | 12.6 |
| TOLUENE | 56.6 | 24.8 |
| ETHYLBENZENE | 15.3 | 7.0 |
| m&p-XYLENE | 46.8 | 20.4 |
| o-XYLENE | 14.0 | 6.6 |
| n-PROPYLBENZENE | 2.9 | 1.0 |
| m-ETHYLTOLUENE | 10.1 | 3.8 |
| p-ETHYLTOLUENE | 4.9 | 2.1 |
| 1,3,5-TRIMETHYLBENZENE | 5.8 | 2.1 |
| o-ETHYLTOLUENE | 4.1 | 2.1 |
| 1,2,4-TRIMETHYLBENZENE | 21.3 | 8.2 |
| n-DECANE | 4.0 | 1.5 |
| 1,4-DIETHYLBENZENE | 2.9 | 1.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.4 | 2.9 |
| SUM OTHER AROMATICS | 31.9 | 15.2 |

SUMMARY

| | | |
|---|---|---|
| ACETYLENE | 28.5 | 11.1 |
| SUM UNKNOWNS | 12.1 | 7.9 |
| SUM PARAFFINS | 665.2 | 204.2 |
| SUM OLEFINS | 108.2 | 44.3 |
| SUM AROMATICS | 262.2 | 112.4 |
| SUM HYDROCARBONS | 1076.3 | 380.1 |

## TABLE A-39a. Hydrocarbon concentration data for SCRANTON/WILKES-BARR, PA

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1244 84/07/13 | 1285 84/08/17 | 1439 84/08/26 | 1585 84/08/03 | 1644 84/08/06 | 1686 84/08/09 | 1788 84/08/16 | 2269 84/09/17 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 31.7 | 9.3 | 4.4 | 12.4 | 9.3 | 12.0 | 9.8 | 12.8 |
| PROPANE | 21.5 | 27.4 | 18.1 | 21.2 | 8.8 | 53.9 | 24.2 | 31.1 |
| ISOBUTANE | 10.2 | 8.1 | 12.0 | 12.0 | 4.7 | 20.8 | 9.7 | 10.5 |
| n-BUTANE | 26.3 | 18.4 | 24.0 | 28.5 | 11.1 | 49.5 | 20.2 | 19.9 |
| ISOPENTANE | 21.1 | 22.4 | 29.1 | 33.3 | 12.1 | 56.9 | 25.4 | 28.7 |
| n-PENTANE | 9.7 | 12.1 | 21.4 | 17.7 | 6.6 | 30.1 | 13.9 | 16.0 |
| 2,2-DIMETHYLBUTANE | 0.7 | 0.6 | 0.8 | 1.1 | 0.3 | 1.9 | 0.9 | 1.0 |
| CYCLOPENTANE | 1.1 | 1.0 | 1.2 | 1.4 | 0.4 | 2.5 | 1.1 | 1.3 |
| 2,3-DIMETHYLBUTANE | 1.5 | 1.6 | 2.3 | 2.2 | 0.8 | 4.0 | 1.8 | 2.5 |
| 2-METHYLPENTANE | 7.3 | 7.2 | 10.0 | 11.0 | 3.9 | 18.3 | 9.1 | 11.9 |
| 3-METHYLPENTANE | 6.6 | 9.0 | 11.7 | 8.6 | 2.3 | 14.9 | 5.4 | 7.2 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.7 | 4.6 | 9.9 | 8.0 | 2.9 | 13.2 | 6.4 | 9.0 |
| METHYLCYCLOPENTANE | 2.7 | 3.2 | 4.9 | 4.4 | 1.5 | 7.4 | 3.7 | 5.0 |
| 2,4-DIMETHYLPENTANE | 0.6 | 0.9 | 0.9 | 1.3 | 0.5 | 2.0 | 1.0 | 1.2 |
| CYCLOHEXANE | 33.0 | 1.0 | 2.0 | 1.5 | 0.6 | 2.2 | 0.9 | 1.4 |
| 2-METHYLHEXANE | 1.1 | 1.0 | 7.8 | 5.0 | 1.7 | 8.6 | 4.3 | 6.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 20.3 | * | 8.4 | 4.0 | 1.3 | 8.4 | 3.3 | 5.0 |
| 2,2,4-TRIMETHYLPENTANE | 2.1 | 2.7 | 1.9 | 2.7 | 0.5 | 5.1 | 1.5 | 2.6 |
| n-HEPTANE | 1.6 | 2.5 | 8.6 | 3.1 | 1.0 | 5.1 | 2.7 | 3.9 |
| METHYLCYCLOHEXANE | 1.2 | 1.4 | 8.6 | 2.2 | 0.7 | 3.7 | 1.9 | 2.3 |
| 2,5-DIMETHYLHEXANE | 0.7 | 0.9 | 0.8 | 0.9 | 0.5 | 1.5 | 0.7 | 1.0 |
| 2,4-DIMETHYLHEXANE | 2.0 | 2.2 | 0.8 | 1.0 | 0.5 | 1.8 | 0.8 | 1.5 |
| 2,3,4-TRIMETHYLPENTANE | 1.0 | 0.5 | 0.6 | 0.6 | 0.2 | 1.4 | 0.6 | 1.0 |
| 2-METHYLHEPTANE | 0.6 | 1.1 | 1.3 | 1.1 | 0.3 | 2.6 | 0.9 | 2.0 |
| 3-METHYLHEPTANE | 0.6 | 1.4 | 1.2 | 1.6 | 0.6 | 2.8 | 1.5 | 2.1 |
| 2,2,5-TRIMETHYLHEXANE | 0.1 | 0.2 | 0.2 | 0.2 | * | 0.7 | 0.2 | 0.4 |
| n-OCTANE | 0.6 | 1.4 | 1.1 | 1.7 | 0.6 | 2.5 | 1.4 | 1.4 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | * | * | 1.1 | * | 2.9 | 0.9 | 1.1 |
| 3-METHYLOCTANE | 0.2 | 0.8 | 0.8 | 0.7 | 0.1 | 1.2 | 0.4 | 0.8 |
| n-NONANE | 0.4 | 1.1 | 1.5 | 1.7 | 0.5 | 5.0 | 1.5 | 1.2 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.5 | 2.9 | 2.0 | 2.6 | 1.1 | 4.8 | 2.3 | 2.2 |
| SUM OTHER PARAFFINS | 92.6 | 89.0 | 53.1 | 30.6 | 18.5 | 35.7 | 24.5 | 22.0 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| **OLEFINS** |  |  |  |  |  |  |  |  |
| ETHYLENE | 121.6 | 14.0 | 8.0 | 14.6 | 5.6 | 21.5 | 12.8 | 19.8 |
| PROPENE | 3.9 | 4.5 | 2.8 | 4.1 | 1.4 | 7.9 | 3.7 | 6.2 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.9 | 3.7 | 3.7 | 3.7 | 1.5 | 7.5 | 3.3 | 4.5 |
| 1,3-BUTADIENE | 0.7 | 0.5 | 0.5 | 0.9 | * | 1.6 | 0.5 | 1.3 |
| t-2-BUTENE | 1.5 | 1.0 | 1.7 | 1.1 | 0.3 | 3.4 | 1.3 | 1.9 |
| c-2-BUTENE | 0.9 | 1.0 | 1.3 | 0.8 | 0.4 | 2.6 | 1.0 | 1.3 |
| 1-PENTENE | 0.7 | 0.8 | 0.9 | 1.1 | 0.4 | 2.5 | 1.4 | 1.1 |
| 2-METHYL-1-BUTENE | 1.0 | 1.3 | 1.4 | 1.5 | 0.5 | 3.4 | 1.8 | 1.8 |
| ISOPRENE | 3.0 | 1.8 | 1.4 | 1.5 | 3.6 | 6.8 | 3.7 | 1.1 |
| t-2-PENTENE | 1.2 | 1.3 | 1.5 | 1.1 | 0.5 | 3.4 | 1.4 | 2.2 |
| c-2-PENTENE | 0.9 | 6.2 | 1.3 | 0.6 | 0.8 | 2.8 | 1.1 | 3.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.4 | * | * | 0.2 | 0.5 | 1.8 | * | 0.5 |
| 2-METHYL-2-PENTENE | 0.3 | 0.2 | 0.8 | 0.3 | 0.1 | 1.6 | 0.5 | 0.9 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.8 | 1.0 | 3.1 | 1.6 | 0.8 | 2.2 | 1.2 | 1.3 |
| a-PINENE | 1.9 | 1.4 | 0.9 | 1.0 | 0.8 | 2.7 | 1.3 | 1.2 |
| SUM OTHER OLEFINS | 90.6 | 49.8 | 31.3 | 28.2 | 23.1 | 38.5 | 28.3 | 31.1 |
| **AROMATICS** |  |  |  |  |  |  |  |  |
| BENZENE | 5.1 | 5.8 | 5.0 | 8.5 | 3.2 | 13.6 | 7.0 | 10.3 |
| TOLUENE | 9.6 | 19.3 | 27.6 | 22.3 | 12.3 | 38.5 | 21.3 | 25.0 |
| ETHYLBENZENE | 2.5 | 3.6 | 2.7 | 3.6 | 1.3 | 6.4 | 3.2 | 4.0 |
| m&p-XYLENE | 6.6 | 11.1 | 9.8 | 12.3 | 3.8 | 22.0 | 10.5 | 14.7 |
| o-XYLENE | 2.7 | 3.9 | 3.2 | 4.3 | 1.5 | 7.3 | 3.8 | 5.2 |
| n-PROPYLBENZENE | 1.2 | 1.6 | 0.5 | 1.2 | 0.3 | 1.9 | 1.0 | 1.3 |
| m-ETHYLTOLUENE | 3.8 | 4.2 | 3.0 | 3.6 | 1.8 | 5.4 | 3.2 | 4.6 |
| p-ETHYLTOLUENE | 2.4 | 3.2 | 1.9 | 2.4 | 1.1 | 2.5 | 2.1 | 2.4 |
| 1,3,5-TRIMETHYLBENZENE | 1.0 | 1.8 | 1.0 | 2.0 | 0.5 | 2.3 | 1.8 | 2.6 |
| o-ETHYLTOLUENE | 1.4 | 2.7 | 1.9 | 2.1 | 0.9 | 3.9 | 1.9 | 2.3 |
| 1,2,4-TRIMETHYLBENZENE | 3.6 | 5.3 | 4.3 | 5.7 | 2.4 | 9.4 | 5.3 | 7.6 |
| n-DECANE | 5.3 | 4.9 | 2.6 | 3.3 | 3.9 | 4.3 | 0.8 | 3.5 |
| 1,4-DIETHYLBENZENE | 1.4 | 1.6 | 1.8 | 2.0 | 1.0 | 2.6 | 1.8 | 2.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.0 | 1.8 | 2.0 | 2.0 | 1.1 | 3.0 | 1.9 | 2.1 |
| SUM OTHER AROMATICS | 54.8 | 38.7 | 31.4 | 26.1 | 22.5 | 43.0 | 19.7 | 28.7 |
| **SUMMARY** |  |  |  |  |  |  |  |  |
| ACETYLENE | 5.4 | 10.8 | 6.0 | 8.6 | 3.3 | 16.8 | 8.8 | 19.6 |
| SUM UNKNOWNS | 19.1 | 9.7 | * | * | * | * | 0.1 | 2.6 |
| SUM PARAFFINS | 306.7 | 236.9 | 252.7 | 226.7 | 95.3 | 384.8 | 184.4 | 217.2 |
| SUM OLEFINS | 233.0 | 89.1 | 61.2 | 62.9 | 41.0 | 110.9 | 63.9 | 80.3 |
| SUM AROMATICS | 103.1 | 110.1 | 99.3 | 102.0 | 58.3 | 166.8 | 85.9 | 117.2 |
| SUM HYDROCARBONS | 667.5 | 461.3 | 419.3 | 400.4 | 198.0 | 679.5 | 343.2 | 437.1 |

TABLE A-39b. Hydrocarbon concentration data for SCRANTON/WILKES-BARR, PA

| Compound | ID Number and Sample Date<br>2426REO<br>84/09/25 |
|---|---|
| **PARAFFINS** | |
| ETHANE | 17.7 |
| PROPANE | 69.8 |
| ISOBUTANE | 29.8 |
| n-BUTANE | 58.7 |
| ISOPENTANE | 71.3 |
| n-PENTANE | 37.3 |
| 2,2-DIMETHYLBUTANE | 4.3 |
| CYCLOPENTANE | 3.1 |
| 2,3-DIMETHYLBUTANE | 9.2 |
| 2-METHYLPENTANE | 35.3 |
| 3-METHYLPENTANE | 33.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 22.6 |
| METHYLCYCLOPENTANE | 13.6 |
| 2,4-DIMETHYLPENTANE | 3.6 |
| CYCLOHEXANE | 3.1 |
| 2-METHYLHEXANE | 12.4 |
| 2,3-DIMETHYLPENTANE | * |
| 3-METHYLHEXANE | 10.7 |
| 2,2,4-TRIMETHYLPENTANE | 4.4 |
| n-HEPTANE | 8.7 |
| METHYLCYCLOHEXANE | 5.9 |
| 2,5-DIMETHYLHEXANE | 2.0 |
| 2,4-DIMETHYLHEXANE | 2.0 |
| 2,3,4-TRIMETHYLPENTANE | 1.7 |
| 2-METHYLHEPTANE | 3.4 |
| 3-METHYLHEPTANE | 3.8 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 |
| n-OCTANE | 2.7 |
| 2,4-DIMETHYLHEPTANE | 0.2 |
| 4-METHYLOCTANE | 2.0 |
| 3-METHYLOCTANE | 1.4 |
| n-NONANE | 2.5 |
| 4-METHYLNONANE | * |
| n-DECANE | 6.4 |
| SUM OTHER PARAFFINS | 48.9 |

OLEFINS

| | |
|---|---|
| ETHYLENE | 25.6 |
| PROPENE | 9.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 9.6 |
| 1,3-BUTADIENE | 2.3 |
| t-2-BUTENE | 5.5 |
| c-2-BUTENE | 4.1 |
| 1-PENTENE | 3.1 |
| 2-METHYL-1-BUTENE | 5.0 |
| ISOPRENE | 1.8 |
| t-2-PENTENE | 5.5 |
| c-2-PENTENE | 5.9 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 1.3 |
| 2-METHYL-2-PENTENE | 2.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.0 |
| a-PINENE | 5.4 |
| SUM OTHER OLEFINS | 44.2 |

AROMATICS

| | |
|---|---|
| BENZENE | 18.4 |
| TOLUENE | 60.6 |
| ETHYLBENZENE | 7.8 |
| m&p-XYLENE | 27.5 |
| o-XYLENE | 9.4 |
| n-PROPYLBENZENE | 2.3 |
| m-ETHYLTOLUENE | 7.6 |
| p-ETHYLTOLUENE | 4.1 |
| 1,3,5-TRIMETHYLBENZENE | 4.6 |
| o-ETHYLTOLUENE | 6.0 |
| 1,2,4-TRIMETHYLBENZENE | 12.1 |
| n-DECANE | 5.0 |
| 1,4-DIETHYLBENZENE | 3.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.5 |
| SUM OTHER AROMATICS | 53.5 |

SUMMARY

| | |
|---|---|
| ACETYLENE | 20.4 |
| SUM UNKNOWNS | 3.5 |
| SUM PARAFFINS | 534.4 |
| SUM OLEFINS | 134.8 |
| SUM AROMATICS | 226.7 |
| SUM HYDROCARBONS | 920.1 |

TABLE A-40a. Hydrocarbon concentration data for TEXAS CITY, TX

| | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Compound | 1040 85/06/06 | 1122 85/06/12 | 1165 85/06/15 | 1235 84/07/13 | 1257 84/07/16 | 1296 85/06/25 | 1344 84/07/20 | 1449 85/07/05 |
| PARAFFINS | | | | | | | | |
| ETHANE | 25.5 | 103.1 | 26.9 | 95.5 | 121.5 | 19.3 | 135.1 | 11.2 |
| PROPANE | 59.1 | 71.2 | 50.0 | 85.7 | 111.1 | 40.8 | 119.7 | 6.8 |
| ISOBUTANE | 34.1 | 35.8 | 36.5 | 46.4 | 57.7 | 23.2 | 55.3 | 4.6 |
| n-BUTANE | 80.6 | 37.6 | 111.4 | 52.4 | 72.1 | 46.0 | 53.4 | 17.2 |
| ISOPENTANE | 98.0 | 28.4 | 121.3 | 45.1 | 59.8 | 34.2 | 38.5 | 18.0 |
| n-PENTANE | 55.2 | 19.0 | 66.7 | 26.3 | 34.2 | 30.1 | 27.2 | 10.1 |
| 2,2-DIMETHYLBUTANE | 3.1 | 1.7 | 4.0 | 2.3 | 2.4 | 0.8 | 2.2 | 0.5 |
| CYCLOPENTANE | 5.6 | 1.9 | 6.2 | 2.3 | 2.9 | 2.3 | 2.2 | 1.0 |
| 2,3-DIMETHYLBUTANE | 9.1 | 2.6 | 9.5 | 3.7 | 4.3 | 2.0 | 6.5 | 1.5 |
| 2-METHYLPENTANE | 35.7 | 10.1 | 38.3 | 15.6 | 18.3 | 13.4 | 21.4 | 5.8 |
| 3-METHYLPENTANE | 32.5 | 5.3 | 22.0 | 8.8 | 10.2 | 6.5 | 18.5 | 3.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 36.2 | 12.0 | 26.5 | 13.5 | 14.2 | 10.2 | 18.3 | 4.6 |
| METHYLCYCLOPENTANE | 16.9 | 7.2 | 14.0 | 10.3 | 8.9 | 4.9 | 10.3 | 2.4 |
| 2,4-DIMETHYLPENTANE | 3.3 | 1.1 | 4.0 | 1.4 | 1.7 | 0.6 | 1.9 | 0.6 |
| CYCLOHEXANE | 4.7 | 8.0 | 4.5 | 6.9 | 7.2 | 2.5 | 8.9 | 0.7 |
| 2-METHYLHEXANE | 8.6 | 5.0 | 15.9 | 5.7 | 5.6 | 3.9 | 5.9 | 3.3 |
| 2,3-DIMETHYLPENTANE | 4.3 | * | * | * | * | * | * | * |
| 3-METHYLHEXANE | 13.2 | 3.1 | 11.3 | 3.9 | 4.1 | 3.0 | 4.1 | 1.9 |
| 2,2,4-TRIMETHYLPENTANE | 9.9 | 1.1 | 15.6 | 2.1 | 3.0 | 1.2 | 1.5 | 2.6 |
| n-HEPTANE | * | 5.0 | 11.9 | 5.4 | 6.4 | 4.1 | 6.3 | 1.5 |
| METHYLCYCLOHEXANE | 7.4 | 10.1 | 7.3 | 7.8 | 7.3 | 3.3 | 11.3 | 1.1 |
| 2,5-DIMETHYLHEXANE | 3.1 | 0.9 | 3.8 | 1.2 | 1.4 | 0.9 | 1.1 | 0.5 |
| 2,4-DIMETHYLHEXANE | 3.3 | 0.8 | 4.2 | 1.3 | 1.7 | 0.8 | 1.0 | 0.6 |
| 2,3,4-TRIMETHYLPENTANE | 4.4 | 0.5 | 6.9 | 0.9 | 1.0 | 0.1 | 0.6 | 1.4 |
| 2-METHYLHEPTANE | 4.7 | 0.9 | 5.7 | 3.0 | 1.8 | 1.6 | 2.6 | 0.8 |
| 3-METHYLHEPTANE | 5.4 | 1.2 | 5.5 | 2.1 | 2.1 | 1.1 | 1.7 | 0.9 |
| 2,2,5-TRIMETHYLHEXANE | 2.3 | 0.4 | 3.5 | 0.4 | 0.5 | 0.1 | 0.6 | 0.2 |
| n-OCTANE | 5.6 | 1.9 | 5.8 | 2.7 | 2.7 | 2.2 | 2.9 | 0.6 |
| 2,4-DIMETHYLHEPTANE | 0.6 | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | * | 3.1 | 1.3 | 1.3 | 0.7 | 1.0 | 0.2 |
| 3-METHYLOCTANE | 2.3 | 0.6 | 2.8 | 0.9 | 0.9 | 0.6 | 1.0 | 0.6 |
| n-NONANE | 4.9 | 1.1 | 4.9 | 1.7 | 1.5 | 1.4 | 32.8 | 0.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 4.3 | 0.7 | 4.1 | 2.3 | 1.9 | 1.4 | 9.4 | 0.7 |
| SUM OTHER PARAFFINS | 151.8 | 44.5 | 78.9 | 41.3 | 50.4 | 25.5 | 226.9 | 10.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 24.3 | 26.4 | 17.8 | 17.0 | 17.2 | 6.6 | 20.8 | 7.9 |
| PROPENE | 27.1 | 13.9 | 12.8 | 8.0 | 9.1 | 9.4 | 8.6 | 3.4 |
| 2-METHYLPROPYLENE, BUTENE-1 | 14.2 | 2.3 | * | 4.3 | 6.4 | 5.4 | 2.7 | 2.8 |
| 1,3-BUTADIENE | 0.5 | 1.6 | 0.2 | 0.9 | 0.7 | * | 0.8 | 0.3 |
| t-2-BUTENE | 8.8 | * | 8.3 | 1.5 | 3.0 | 2.4 | 1.4 | 0.8 |
| c-2-BUTENE | 7.1 | 0.3 | 6.4 | 0.9 | 2.3 | 1.6 | 0.6 | 0.8 |
| 1-PENTENE | 3.8 | * | 5.1 | 1.0 | 2.4 | 1.9 | 1.2 | 1.0 |
| 2-METHYL-1-BUTENE | 7.4 | 0.2 | 7.5 | 1.4 | 2.5 | 1.6 | 0.6 | 1.7 |
| ISOPRENE | 0.5 | 0.9 | 0.3 | 1.0 | 0.8 | 0.4 | 1.4 | 0.5 |
| t-2-PENTENE | 8.7 | 0.1 | 8.9 | 1.8 | 2.9 | 1.9 | 0.7 | 1.6 |
| c-2-PENTENE | 0.7 | 0.1 | 10.6 | 2.4 | 3.8 | 2.0 | 0.2 | 1.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 5.1 | 0.6 | 1.8 | 0.1 | * | * | * | 0.1 |
| 2-METHYL-2-PENTENE | 2.8 | 0.1 | 2.9 | 0.6 | 0.9 | 0.5 | 0.1 | 0.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 21.9 | 1.0 | 1.2 | 0.7 | 0.9 | 2.7 | 2.9 | 0.6 |
| a-PINENE | 37.8 | 4.4 | 2.9 | 2.8 | 3.9 | 2.5 | 22.5 | 3.3 |
| SUM OTHER OLEFINS | 108.4 | 47.6 | 85.4 | 39.9 | 57.5 | 50.5 | 27.9 | 37.4 |
| AROMATICS | | | | | | | | |
| BENZENE | 119.4 | 14.6 | 80.4 | 11.9 | 9.8 | 12.1 | 12.7 | 15.0 |
| TOLUENE | 133.5 | 9.4 | 101.5 | 17.3 | 19.2 | 24.3 | 23.0 | 13.1 |
| ETHYLBENZENE | 19.8 | 2.0 | 18.7 | 4.0 | 3.9 | 2.2 | 3.6 | 5.5 |
| m&p-XYLENE | 61.1 | 5.2 | 39.0 | 10.7 | 11.4 | 7.8 | 8.9 | 5.3 |
| o-XYLENE | 14.6 | 1.9 | 12.4 | 3.7 | 3.9 | 2.8 | 3.2 | 2.0 |
| n-PROPYLBENZENE | 3.5 | 0.9 | 2.6 | 1.1 | 1.4 | 0.3 | 0.7 | 0.4 |
| m-ETHYLTOLUENE | 12.5 | 0.9 | 9.3 | 3.9 | 4.3 | 1.5 | 5.0 | 1.6 |
| p-ETHYLTOLUENE | 6.8 | 1.7 | 5.2 | 2.1 | 2.3 | 1.3 | 4.5 | 1.3 |
| 1,3,5-TRIMETHYLBENZENE | 4.4 | 0.4 | 5.7 | 2.0 | 2.2 | 1.0 | 3.6 | 0.8 |
| o-ETHYLTOLUENE | 8.2 | 1.5 | 6.2 | 2.2 | 2.4 | 1.0 | 9.3 | 0.9 |
| 1,2,4-TRIMETHYLBENZENE | 12.1 | 1.3 | 14.7 | 5.4 | 6.3 | 2.9 | 12.2 | 3.1 |
| n-DECANE | 83.1 | 116.0 | 90.8 | 5.7 | 6.2 | 45.9 | 3.7 | 29.0 |
| 1,4-DIETHYLBENZENE | 3.1 | 0.9 | 3.2 | 1.7 | 1.6 | 1.2 | 0.6 | 0.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 6.2 | 0.9 | 3.6 | 2.4 | 2.2 | 1.3 | 1.9 | 0.6 |
| SUM OTHER AROMATICS | 132.3 | 31.9 | 70.9 | 36.3 | 40.5 | 15.9 | 77.7 | 11.1 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 3.0 | 7.0 | 2.1 | 5.4 | 5.7 | 1.0 | 15.0 | * |
| SUM UNKNOWNS | 49.7 | 2.6 | 4.8 | * | 0.1 | 5.0 | 54.3 | 3.9 |
| SUM PARAFFINS | 737.1 | 424.3 | 734.1 | 501.6 | 621.2 | 290.0 | 831.3 | 117.6 |
| SUM OLEFINS | 279.5 | 100.0 | 172.5 | 85.0 | 115.0 | 89.9 | 93.0 | 65.0 |
| SUM AROMATICS | 621.2 | 190.0 | 464.8 | 110.9 | 118.3 | 122.2 | 171.3 | 90.9 |
| SUM HYDROCARBONS | 1691.3 | 724.9 | 1379.2 | 703.1 | 860.5 | 508.5 | 1165.0 | 277.6 |

TABLE A-40b. Hydrocarbon concentration data for TEXAS CITY, TX

| Compound | ID Number and Sample Date<br>1483<br>84/07/27 | 1548<br>84/08/01 | 1592<br>85/07/16 | 1635<br>84/08/07 | 1681<br>85/07/22 | 1795<br>84/08/16 | 1838<br>85/07/31 | 1843<br>84/08/20 |
|---|---|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | | | |
| ETHANE | 449.2 | 475.3 | 55.9 | 30.0 | 15.2 | 153.4 | 29.5 | 12.8 |
| PROPANE | 391.0 | 392.7 | 79.1 | 43.6 | 11.9 | 142.8 | 39.5 | 10.0 |
| ISOBUTANE | 162.7 | 192.2 | 56.7 | 21.5 | 8.1 | 66.0 | 15.8 | 6.1 |
| n-BUTANE | 171.7 | 239.2 | 48.9 | 43.2 | 28.8 | 71.9 | 16.1 | 24.1 |
| ISOPENTANE | 110.9 | 223.3 | 47.2 | 74.2 | 27.4 | 53.9 | 18.4 | 24.7 |
| n-PENTANE | 74.9 | 154.0 | 26.5 | 37.7 | 11.1 | 37.4 | 7.5 | 11.5 |
| 2,2-DIMETHYLBUTANE | 6.2 | 15.5 | 2.7 | 5.2 | 1.0 | 2.6 | 2.6 | 1.0 |
| CYCLOPENTANE | 6.1 | 12.7 | 2.8 | 3.7 | 1.0 | 3.5 | 0.8 | 1.2 |
| 2,3-DIMETHYLBUTANE | 9.2 | 37.4 | 4.4 | 8.4 | 1.8 | 4.1 | 1.3 | 3.8 |
| 2-METHYLPENTANE | 34.2 | 138.4 | 19.0 | 36.1 | 6.8 | 23.4 | 5.7 | 13.3 |
| 3-METHYLPENTANE | 0.1 | 144.7 | 11.5 | 24.7 | 5.2 | 11.1 | 5.2 | 12.4 |
| n-HEXANE,2-ETHYL-1-BUTENE | 0.9 | 138.3 | 59.7 | 27.3 | 4.1 | 26.8 | 4.6 | 8.0 |
| METHYLCYCLOPENTANE | 3.2 | 64.6 | 14.4 | 11.4 | 2.3 | 10.8 | 3.2 | 5.1 |
| 2,4-DIMETHYLPENTANE | 0.3 | 22.2 | 1.8 | 3.0 | 0.6 | 1.7 | 0.4 | 1.6 |
| CYCLOHEXANE | * | 30.6 | 15.8 | 3.6 | 1.0 | 7.7 | 1.7 | 2.0 |
| 2-METHYLHEXANE | * | 131.2 | 12.0 | 12.0 | 7.1 | 7.3 | 4.2 | 3.3 |
| 2,3-DIMETHYLPENTANE | 14.0 | 44.8 | * | * | * | * | * | * |
| 3-METHYLHEXANE | 2.7 | 167.6 | 7.5 | 9.7 | 2.6 | 5.3 | 2.3 | 2.6 |
| 2,2,4-TRIMETHYLPENTANE | * | 9.3 | 4.5 | 2.6 | 2.6 | 3.4 | 1.6 | 2.1 |
| n-HEPTANE | 0.1 | 165.6 | 12.1 | 7.4 | 1.9 | 7.1 | 2.5 | 2.2 |
| METHYLCYCLOHEXANE | 2.0 | 61.0 | 15.4 | 7.1 | 2.4 | 10.1 | 2.4 | 1.8 |
| 2,5-DIMETHYLHEXANE | 2.7 | 23.1 | 2.0 | 1.6 | 0.7 | 1.4 | 0.6 | 0.6 |
| 2,4-DIMETHYLHEXANE | * | 32.9 | 1.8 | 1.4 | 0.6 | 1.6 | 0.5 | 0.8 |
| 2,3,4-TRIMETHYLPENTANE | 1.5 | 5.2 | 2.4 | 1.7 | 1.2 | 1.3 | 0.0 | 0.9 |
| 2-METHYLHEPTANE | 5.3 | 75.3 | 4.2 | 2.6 | 1.5 | 3.6 | 0.7 | 0.9 |
| 3-METHYLHEPTANE | 4.6 | 109.2 | 3.7 | 2.5 | 1.2 | 2.5 | 1.2 | 1.0 |
| 2,2,5-TRIMETHYLHEXANE | 1.4 | 4.2 | 2.2 | 0.5 | 0.3 | 0.8 | 0.1 | 0.3 |
| n-OCTANE | 7.1 | 69.7 | 8.1 | 2.7 | 2.7 | 3.6 | * | 0.8 |
| 2,4-DIMETHYLHEPTANE | 0.5 | 4.7 | * | * | * | * | * | * |
| 4-METHYLOCTANE | 3.8 | 17.9 | 2.3 | 1.2 | 0.9 | 2.3 | 0.8 | 0.6 |
| 3-METHYLOCTANE | 1.7 | 9.6 | 1.7 | 1.0 | 1.0 | 1.3 | * | 0.3 |
| n-NONANE | 4.4 | 10.4 | 4.0 | 1.6 | 1.5 | 2.0 | * | 0.7 |
| 4-METHYLNONANE | * | 2.9 | * | * | * | * | * | * |
| n-DECANE | 3.3 | 17.6 | 3.8 | 1.4 | 1.0 | 2.3 | * | 1.1 |
| SUM OTHER PARAFFINS | 119.0 | 301.0 | 40.6 | 38.4 | 17.6 | 40.8 | 66.5 | 20.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 29.5 | 17.5 | 70.3 | 7.6 | 9.1 | 41.7 | 29.8 | 10.3 |
| PROPENE | 11.1 | 7.6 | 58.2 | 17.8 | 4.8 | 22.5 | 56.7 | 3.5 |
| 2-METHYLPROPYLENE, BUTENE-1 | 3.8 | 8.6 | 7.8 | 0.3 | 4.5 | 4.7 | 5.3 | 4.8 |
| 1,3-BUTADIENE | 0.7 | 1.2 | 5.7 | 1.3 | 0.4 | 2.7 | 0.5 | 0.6 |
| t-2-BUTENE | 0.6 | 7.9 | 2.8 | 5.8 | 1.9 | 1.9 | 1.0 | 1.4 |
| c-2-BUTENE | 1.7 | 4.7 | 1.9 | 5.5 | 1.7 | 0.9 | 0.8 | 1.2 |
| 1-PENTENE | 1.3 | 3.3 | 2.2 | 4.1 | 1.3 | 1.7 | 0.2 | 1.3 |
| 2-METHYL-1-BUTENE | 2.1 | 5.9 | 2.7 | 7.1 | 2.0 | 1.9 | 0.6 | 1.8 |
| ISOPRENE | 0.6 | 1.8 | 1.8 | 1.0 | 0.8 | 1.2 | 0.3 | 0.5 |
| t-2-PENTENE | 2.0 | 6.0 | 3.4 | 7.6 | 2.7 | 1.8 | 0.8 | 2.0 |
| c-2-PENTENE | 2.4 | 5.7 | 4.2 | 9.7 | 2.8 | 1.9 | * | 2.6 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 3.4 | 0.5 | 2.5 | 0.1 | 1.9 | * | 0.9 |
| 2-METHYL-2-PENTENE | * | 3.8 | 0.7 | 1.9 | 0.5 | 0.7 | * | 0.6 |
| 2,2,3-TRIMETHYL-1-BUTENE | * | 98.4 | 1.3 | 0.7 | 3.1 | 1.0 | 2.2 | 0.8 |
| a-PINENE | 2.3 | 6.9 | 2.2 | 2.9 | 3.4 | 2.3 | 0.2 | 1.9 |
| SUM OTHER OLEFINS | 161.4 | 125.4 | 35.2 | 56.4 | 26.4 | 37.3 | 9.5 | 36.0 |
| AROMATICS | | | | | | | | |
| BENZENE | 19.9 | 24.9 | 30.6 | 47.2 | 3.4 | 17.5 | 6.6 | 5.6 |
| TOLUENE | 26.2 | 334.1 | 31.1 | 18.4 | 13.2 | 22.8 | 9.6 | 13.1 |
| ETHYLBENZENE | 4.8 | 23.3 | 7.4 | 3.3 | 1.6 | 3.7 | 4.1 | 2.4 |
| m&p-XYLENE | 15.4 | 75.4 | 12.6 | 12.4 | 5.8 | 11.3 | 5.7 | 6.3 |
| o-XYLENE | 5.5 | 20.9 | 6.0 | 4.1 | 3.7 | 4.0 | * | 2.5 |
| n-PROPYLBENZENE | 1.6 | 5.3 | 0.9 | 0.7 | 0.3 | 1.2 | 1.4 | 0.6 |
| m-ETHYLTOLUENE | 4.5 | 10.9 | 3.2 | 3.1 | 1.8 | 3.5 | 0.2 | 2.5 |
| p-ETHYLTOLUENE | 2.8 | 6.9 | 1.9 | 2.0 | 1.0 | 2.1 | 0.8 | 1.6 |
| 1,3,5-TRIMETHYLBENZENE | 2.8 | 6.0 | 2.4 | 2.0 | 1.4 | 2.0 | 0.5 | 1.3 |
| o-ETHYLTOLUENE | 2.6 | 8.7 | 1.8 | 1.6 | 1.1 | 2.0 | 0.2 | 1.4 |
| 1,2,4-TRIMETHYLBENZENE | 6.8 | 19.4 | 7.6 | 5.4 | 3.8 | 6.0 | * | 4.3 |
| n-DECANE | 5.1 | 11.4 | 1.9 | 3.4 | 0.6 | 1.8 | * | 1.6 |
| 1,4-DIETHYLBENZENE | 2.2 | 6.3 | 1.3 | 1.6 | 1.1 | 1.8 | * | 1.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.6 | 15.4 | 2.6 | 1.7 | 0.9 | 3.1 | * | 1.4 |
| SUM OTHER AROMATICS | 32.5 | 112.1 | 29.1 | 29.9 | 15.4 | 27.0 | 81.4 | 17.4 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 88.8 | 26.0 | 5.7 | 1.5 | 6.5 | 6.6 | 5.0 | 6.8 |
| SUM UNKNOWNS | 78.2 | 20.0 | 12.2 | 11.2 | 3.0 | 8.6 | 18.3 | 25.1 |
| SUM PARAFFINS | 1595.8 | 3545.3 | 576.1 | 470.7 | 174.3 | 714.8 | 236.9 | 179.6 |
| SUM OLEFINS | 220.1 | 308.9 | 201.5 | 132.7 | 66.3 | 126.9 | 108.3 | 71.0 |
| SUM AROMATICS | 135.8 | 681.7 | 141.0 | 137.3 | 55.7 | 110.3 | 110.9 | 63.7 |
| SUM HYDROCARBONS | 2118.9 | 4583.7 | 937.8 | 753.5 | 306.0 | 968.4 | 479.5 | 346.7 |

## TABLE A-40c. Hydrocarbon concentration data for TEXAS CITY, TX

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1930<br>84/08/24 | 1981<br>84/08/28 | 2112<br>85/08/16 | 2134<br>85/08/19 | 2188<br>84/09/11 | 2353<br>84/09/20 | 2378<br>85/09/05 | 2432<br>84/09/25 |
| **PARAFFINS** | | | | | | | | |
| ETHANE | 167.7 | 26.7 | 27.5 | 12.2 | 18.0 | 32.2 | 18.3 | 17.0 |
| PROPANE | 138.2 | 21.6 | 22.5 | 10.5 | 36.0 | 37.2 | 18.9 | 29.4 |
| ISOBUTANE | 59.4 | 7.3 | 14.3 | 9.2 | 28.1 | 23.6 | 15.2 | 23.3 |
| n-BUTANE | 59.9 | 22.1 | 16.3 | 29.4 | 35.9 | 21.9 | 43.2 | 59.9 |
| ISOPENTANE | 38.8 | 22.2 | 15.0 | 27.5 | 39.4 | 16.4 | 30.8 | 52.0 |
| n-PENTANE | 26.6 | 9.9 | 7.1 | 12.6 | 23.3 | 9.6 | 15.5 | 28.6 |
| 2,2-DIMETHYLBUTANE | 2.2 | 1.7 | 0.5 | 1.0 | 1.3 | 0.6 | 1.0 | 1.5 |
| CYCLOPENTANE | 2.3 | 1.1 | 0.6 | 1.1 | 2.8 | 0.8 | 1.7 | 2.6 |
| 2,3-DIMETHYLBUTANE | 3.4 | 1.9 | 1.1 | 1.7 | 4.0 | 1.1 | 2.4 | 3.3 |
| 2-METHYLPENTANE | 14.1 | 10.5 | 4.2 | 6.8 | 22.0 | 6.9 | 20.4 | 13.5 |
| 3-METHYLPENTANE | 7.5 | 6.2 | 2.9 | 5.4 | 13.1 | 4.8 | 5.7 | 7.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 12.8 | 4.9 | 5.4 | 5.2 | 17.6 | 8.1 | 8.7 | 9.6 |
| METHYLCYCLOPENTANE | 8.1 | 3.1 | 2.3 | 3.3 | 11.2 | 3.4 | 5.0 | 6.0 |
| 2,4-DIMETHYLPENTANE | 1.1 | 0.7 | * | 0.6 | 1.7 | 0.4 | 1.1 | 1.6 |
| CYCLOHEXANE | 8.9 | 1.3 | 3.9 | 2.2 | 4.6 | 4.3 | 2.6 | 3.6 |
| 2-METHYLHEXANE | 5.1 | 3.4 | * | 4.0 | 11.4 | 2.2 | 6.7 | 5.6 |
| 2,3-DIMETHYLPENTANE | * | * | 4.0 | * | * | * | * | * |
| 3-METHYLHEXANE | 5.7 | 5.4 | 2.0 | 2.6 | 9.2 | 2.6 | 3.9 | 5.7 |
| 2,2,4-TRIMETHYLPENTANE | 1.1 | 3.3 | 1.8 | 2.4 | 4.7 | 1.3 | 4.5 | 11.8 |
| n-HEPTANE | 5.0 | 3.1 | 1.8 | 2.4 | 13.6 | 2.2 | 4.6 | 5.5 |
| METHYLCYCLOHEXANE | 12.4 | 1.8 | 2.3 | 2.9 | 9.5 | 2.4 | 3.7 | 7.9 |
| 2,5-DIMETHYLHEXANE | 1.0 | 0.7 | 0.1 | 0.7 | 2.7 | 0.4 | 1.2 | 1.7 |
| 2,4-DIMETHYLHEXANE | 0.9 | 1.0 | 0.4 | 0.7 | 1.9 | 0.5 | 1.3 | 2.0 |
| 2,3,4-TRIMETHYLPENTANE | 0.4 | 1.0 | 0.9 | 1.1 | 1.9 | 0.3 | 1.5 | 3.2 |
| 2-METHYLHEPTANE | 2.4 | 0.8 | 0.5 | 0.8 | 6.4 | 0.6 | 2.2 | 2.7 |
| 3-METHYLHEPTANE | 1.6 | 1.1 | 0.8 | 1.3 | 3.5 | 0.6 | 2.1 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.5 | 0.3 | 0.6 | 0.4 | 1.3 | 0.2 | 0.6 | 0.8 |
| n-OCTANE | 2.6 | 0.8 | 1.2 | 2.4 | 6.7 | 1.0 | 3.1 | 3.4 |
| 2,4-DIMETHYLHEPTANE | 0.1 | * | 0.6 | 1.5 | * | * | 1.9 | * |
| 4-METHYLOCTANE | 1.0 | * | 0.3 | 0.6 | 2.1 | 0.4 | 1.1 | 1.2 |
| 3-METHYLOCTANE | 0.5 | 0.3 | 0.4 | 0.6 | 1.5 | 0.2 | 1.2 | 0.8 |
| n-NONANE | 1.5 | 0.9 | 0.8 | 1.0 | 3.8 | 1.2 | 1.9 | 2.3 |
| 4-METHYLNONANE | * | * | * | * | * | * | 0.5 | * |
| n-DECANE | 1.0 | 0.7 | 0.9 | 1.1 | 2.7 | 0.7 | 1.5 | 2.6 |
| SUM OTHER PARAFFINS | 26.4 | 28.2 | 12.2 | 8.9 | 43.9 | 14.7 | 22.5 | 30.0 |

OLEFINS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ETHYLENE | 9.9 | 38.5 | 45.8 | 5.9 | 14.6 | 23.8 | 19.1 | 6.1 |
| PROPENE | 3.2 | 41.6 | 14.8 | 5.1 | 19.4 | 12.1 | 22.2 | 12.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 1.5 | 4.0 | 0.1 | 4.5 | 16.4 | 2.8 | 8.0 | 9.5 |
| 1,3-BUTADIENE | * | 6.0 | 3.6 | 0.6 | 3.1 | 1.5 | 0.5 | 0.8 |
| t-2-BUTENE | 1.0 | 2.1 | 0.7 | 1.5 | 6.2 | 0.5 | 2.9 | 3.5 |
| c-2-BUTENE | 0.2 | 1.4 | 0.5 | 1.3 | 4.8 | 0.2 | 2.3 | 2.6 |
| 1-PENTENE | 0.4 | 1.1 | 1.1 | 1.1 | 2.7 | 0.4 | 2.1 | 2.5 |
| 2-METHYL-1-BUTENE | 0.5 | 1.6 | 1.1 | 1.6 | 3.8 | 0.2 | 4.5 | 3.5 |
| ISOPRENE | 0.5 | 0.4 | 1.0 | * | 0.2 | 1.6 | 0.2 | 0.8 |
| t-2-PENTENE | 0.6 | 4.2 | 1.1 | * | 4.7 | 0.2 | 3.0 | 3.9 |
| c-2-PENTENE | 0.7 | 1.7 | 1.5 | 2.4 | 5.7 | 0.2 | * | 3.1 |
| 2-METHYL-1-PENTENE,1-HEXENE | * | * | 0.1 | 0.1 | * | * | * | 0.3 |
| 2-METHYL-2-PENTENE | 0.1 | 0.5 | * | 0.6 | 3.1 | 0.0 | 1.0 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.5 | 0.4 | 18.6 | 2.9 | 0.4 | 0.4 | 1.7 | 0.8 |
| a-PINENE | 1.5 | 1.2 | 2.1 | 2.4 | * | 0.8 | 1.5 | 1.5 |
| SUM OTHER OLEFINS | 30.4 | 33.2 | 9.4 | 17.0 | 62.7 | 23.6 | 32.5 | 37.0 |

AROMATICS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BENZENE | 5.5 | 6.0 | 12.6 | 5.1 | 29.7 | 5.8 | 18.0 | 7.9 |
| TOLUENE | 8.8 | 14.3 | 11.6 | 11.5 | 44.1 | 7.1 | 23.3 | 22.4 |
| ETHYLBENZENE | 1.4 | 2.1 | 2.2 | 2.1 | 6.6 | 1.1 | 3.8 | 3.6 |
| m&p-XYLENE | 5.0 | 6.6 | 5.0 | 5.2 | 24.6 | 2.7 | 11.4 | 13.1 |
| o-XYLENE | 1.7 | 2.6 | 2.9 | 3.7 | 7.3 | 1.1 | 5.6 | 4.4 |
| n-PROPYLBENZENE | 0.2 | 0.6 | 0.3 | 0.3 | 0.7 | 0.6 | 0.5 | 0.9 |
| m-ETHYLTOLUENE | 1.7 | 2.7 | 1.3 | 1.5 | 3.9 | 0.9 | 2.5 | 2.9 |
| p-ETHYLTOLUENE | 0.9 | 1.5 | 0.4 | 0.5 | 2.3 | 0.8 | 1.3 | 1.8 |
| 1,3,5-TRIMETHYLBENZENE | 0.7 | 1.2 | 0.7 | 1.0 | 1.4 | 0.3 | 1.4 | 2.0 |
| o-ETHYLTOLUENE | 1.1 | 1.4 | 0.7 | 0.9 | 2.5 | 0.6 | 1.5 | 1.6 |
| 1,2,4-TRIMETHYLBENZENE | 2.6 | 4.5 | 0.0 | * | 6.6 | 1.5 | 5.1 | 5.0 |
| n-DECANE | * | 0.9 | 0.3 | 0.5 | 4.6 | 1.8 | 1.0 | 2.3 |
| 1,4-DIETHYLBENZENE | 0.7 | 1.3 | 0.6 | 0.8 | 2.0 | 0.5 | 1.6 | 1.3 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.0 | 1.0 | * | * | 2.4 | 0.4 | 1.7 | 1.9 |
| SUM OTHER AROMATICS | 20.0 | 17.4 | 12.0 | 12.2 | 34.0 | 25.6 | 12.7 | 19.0 |

SUMMARY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ACETYLENE | 12.1 | 7.0 | 2.6 | 2.4 | 1.3 | 1.6 | 5.1 | 3.4 |
| SUM UNKNOWNS | 4.9 | 6.2 | 1.1 | 7.0 | 7.4 | 1.5 | 11.8 | 3.7 |
| SUM PARAFFINS | 621.6 | 195.5 | 156.7 | 165.7 | 387.4 | 204.2 | 257.8 | 350.6 |
| SUM OLEFINS | 51.5 | 138.8 | 102.2 | 47.6 | 148.3 | 68.8 | 102.1 | 89.6 |
| SUM AROMATICS | 52.0 | 64.7 | 51.3 | 45.9 | 173.5 | 51.3 | 91.9 | 90.9 |
| SUM HYDROCARBONS | 742.3 | 413.7 | 314.0 | 268.9 | 718.1 | 327.7 | 468.8 | 538.3 |

TABLE A-40d. Hydrocarbon concentration data for TEXAS CITY, TX

| Compound | ID Number and Sample Date<br>2492<br>85/09/13 | <br>2523<br>85/09/17 | <br>2540<br>85/09/18 | <br>2608<br>85/09/25 |
|---|---|---|---|---|
| PARAFFINS | | | | |
| ETHANE | 32.3 | 14.5 | 13.3 | 28.4 |
| PROPANE | 27.2 | 14.1 | 25.4 | 31.0 |
| ISOBUTANE | 14.4 | 9.2 | 40.5 | 21.3 |
| n-BUTANE | 17.4 | 25.9 | 114.3 | 69.2 |
| ISOPENTANE | 15.1 | 27.9 | 115.8 | 147.1 |
| n-PENTANE | 8.4 | 17.1 | 42.6 | 88.0 |
| 2,2-DIMETHYLBUTANE | 1.0 | 0.8 | 4.7 | 3.5 |
| CYCLOPENTANE | 0.7 | 1.2 | 4.1 | 5.0 |
| 2,3-DIMETHYLBUTANE | 1.2 | 1.7 | 6.9 | 5.3 |
| 2-METHYLPENTANE | 4.4 | 7.1 | 30.6 | 23.9 |
| 3-METHYLPENTANE | 3.0 | 4.8 | 16.0 | 14.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 3.7 | 12.6 | 23.2 | 19.2 |
| METHYLCYCLOPENTANE | 2.1 | 3.8 | 10.0 | 10.9 |
| 2,4-DIMETHYLPENTANE | 0.4 | 0.5 | 2.2 | 1.5 |
| CYCLOHEXANE | 1.3 | 2.0 | 3.6 | 5.6 |
| 2-METHYLHEXANE | 5.1 | * | 10.3 | 9.1 |
| 2,3-DIMETHYLPENTANE | * | 4.6 | * | * |
| 3-METHYLHEXANE | 1.8 | 2.1 | 6.4 | 5.9 |
| 2,2,4-TRIMETHYLPENTANE | 1.5 | 2.0 | 7.4 | 2.8 |
| n-HEPTANE | 1.7 | 2.6 | 6.4 | 7.4 |
| METHYLCYCLOHEXANE | 2.0 | 3.1 | 5.1 | 6.4 |
| 2,5-DIMETHYLHEXANE | 0.1 | 0.1 | 0.4 | 0.7 |
| 2,4-DIMETHYLHEXANE | 0.5 | 0.9 | 1.7 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 0.8 | 0.8 | 2.8 | 1.5 |
| 2-METHYLHEPTANE | 1.0 | 1.1 | 2.3 | 3.3 |
| 3-METHYLHEPTANE | 0.8 | 0.9 | 2.2 | 2.3 |
| 2,2,5-TRIMETHYLHEXANE | 0.2 | 0.3 | 0.9 | 0.5 |
| n-OCTANE | 0.8 | 1.8 | 2.8 | 2.8 |
| 2,4-DIMETHYLHEPTANE | 0.5 | 1.1 | 0.9 | 1.0 |
| 4-METHYLOCTANE | 0.3 | 0.4 | 0.7 | 1.2 |
| 3-METHYLOCTANE | 0.1 | 0.2 | 0.4 | 1.2 |
| n-NONANE | 0.4 | 0.7 | 1.2 | 1.9 |
| 4-METHYLNONANE | * | * | * | 0.7 |
| n-DECANE | 0.5 | 1.9 | 2.3 | 2.2 |
| SUM OTHER PARAFFINS | 4.3 | 10.1 | 14.6 | 21.5 |

| | | | | |
|---|---|---|---|---|
| OLEFINS | | | | |
| ETHYLENE | 5.6 | 7.1 | 5.8 | 14.6 |
| PROPENE | 1.7 | 6.7 | 7.2 | 7.8 |
| 2-METHYLPROPYLENE, BUTENE-1 | 1.8 | 8.3 | 0.2 | 0.1 |
| 1,3-BUTADIENE | * | 1.4 | 8.5 | 0.2 |
| t-2-BUTENE | 0.6 | * | 7.2 | 7.7 |
| c-2-BUTENE | 0.3 | 0.5 | 5.5 | 3.2 |
| 1-PENTENE | 0.4 | 0.5 | 3.2 | 3.1 |
| 2-METHYL-1-BUTENE | 0.6 | 0.9 | 5.9 | 5.2 |
| ISOPRENE | 0.3 | * | 0.3 | 0.2 |
| t-2-PENTENE | 1.0 | 0.8 | 6.0 | 5.7 |
| c-2-PENTENE | 0.8 | 1.0 | 6.9 | 6.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.0 | * | 1.0 | 0.9 |
| 2-METHYL-2-PENTENE | * | 0.1 | 1.4 | 1.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.4 | 0.3 | 0.8 | 0.6 |
| a-PINENE | 0.5 | 0.3 | 1.0 | * |
| SUM OTHER OLEFINS | 6.0 | 12.2 | 19.8 | 17.7 |
| AROMATICS | | | | |
| BENZENE | 3.8 | 7.4 | 10.1 | 34.6 |
| TOLUENE | 9.1 | 10.1 | 32.8 | 28.2 |
| ETHYLBENZENE | 1.4 | 1.8 | 2.8 | 7.7 |
| m&p-XYLENE | 3.7 | 4.7 | 8.8 | 18.1 |
| o-XYLENE | 2.0 | 2.9 | 4.2 | 5.0 |
| n-PROPYLBENZENE | 0.3 | 0.3 | 0.6 | 1.2 |
| m-ETHYLTOLUENE | 1.3 | 1.5 | 2.4 | 3.4 |
| p-ETHYLTOLUENE | 0.6 | 0.8 | 1.3 | 1.9 |
| 1,3,5-TRIMETHYLBENZENE | 0.6 | 1.0 | 1.6 | 1.6 |
| o-ETHYLTOLUENE | 0.6 | 0.8 | 1.1 | 1.8 |
| 1,2,4-TRIMETHYLBENZENE | 8.1 | 3.2 | 10.0 | 9.8 |
| n-DECANE | 0.2 | 0.4 | 0.6 | 1.6 |
| 1,4-DIETHYLBENZENE | 0.5 | 0.6 | 0.8 | 1.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.3 | * | * | * |
| SUM OTHER AROMATICS | 7.9 | 5.1 | 6.9 | 12.1 |
| SUMMARY | | | | |
| ACETYLENE | 5.9 | 5.5 | 5.9 | 2.3 |
| SUM UNKNOWNS | 4.1 | 3.5 | 3.5 | 2.4 |
| SUM PARAFFINS | 156.6 | 179.4 | 523.2 | 549.7 |
| SUM OLEFINS | 20.6 | 40.4 | 81.5 | 75.7 |
| SUM AROMATICS | 41.0 | 41.1 | 84.8 | 129.1 |
| SUM HYDROCARBONS | 228.5 | 270.2 | 699.0 | 759.2 |

TABLE A-41a. Hydrocarbon concentration data for TULSA, OK

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1153<br>86/06/11 | 1354<br>86/06/23 | 1480RA0<br>86/07/01 | 1559<br>86/07/07 | 1783<br>86/07/18 | 1894<br>86/07/24 | 1998<br>86/07/30 | 2051<br>86/08/01 |
| PARAFFINS | | | | | | | | |
| ETHANE | 24.0 | 36.7 | 29.4 | 38.2 | 49.1 | 40.9 | 96.8 | 20.4 |
| PROPANE | 62.0 | 91.8 | 32.5 | 31.3 | 52.0 | 42.3 | 125.4 | 18.2 |
| ISOBUTANE | 23.7 | 71.3 | 14.3 | 9.2 | 16.2 | 19.3 | 60.7 | 8.8 |
| n-BUTANE | [illegible] | 172.6 | 40.1 | 22.9 | 48.0 | 62.3 | 154.7 | 27.2 |
| ISOPENTANE | 43.5 | 94.6 | 26.1 | 14.3 | 30.5 | 49.2 | 71.0 | 25.0 |
| n-PENTANE | 32.1 | 65.8 | 17.1 | 10.7 | 20.9 | 21.0 | 60.4 | 13.1 |
| 2,2-DIMETHYLBUTANE | 1.3 | 3.8 | 0.7 | 0.4 | 0.8 | 1.2 | 1.6 | 0.6 |
| CYCLOPENTANE | 2.3 | 5.0 | 1.3 | 0.6 | 1.5 | 1.6 | 4.5 | 1.3 |
| 2,3-DIMETHYLBUTANE | 2.9 | 7.4 | 2.0 | 1.9 | 2.2 | 3.1 | 5.2 | 2.9 |
| 2-METHYLPENTANE | 10.7 | 28.2 | 7.0 | 4.3 | 8.2 | 9.8 | 21.9 | 9.1 |
| 3-METHYLPENTANE | 6.3 | 18.6 | 4.6 | 3.1 | 5.7 | 7.1 | 15.1 | 7.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 9.9 | 22.8 | 5.4 | 3.9 | 6.8 | 6.7 | 22.2 | 6.1 |
| METHYLCYCLOPENTANE | 5.1 | 11.5 | 3.2 | 2.1 | 4.0 | 3.8 | 11.7 | 4.2 |
| 2,4-DIMETHYLPENTANE | 1.3 | 4.3 | 1.2 | 0.7 | 1.1 | 1.1 | 2.8 | 2.3 |
| CYCLOHEXANE | 12.2 | 23.1 | 1.2 | * | 1.6 | 1.2 | 6.0 | 1.3 |
| 2-METHYLHEXANE | 5.2 | 13.4 | 3.4 | 2.3 | 3.5 | * | 10.7 | * |
| 2,3-DIMETHYLPENTANE | * | * | 3.9 | * | * | 3.7 | * | 7.8 |
| 3-METHYLHEXANE | 2.6 | 8.5 | 2.2 | 1.5 | 2.4 | 2.5 | 7.6 | 4.0 |
| 2,2,4-TRIMETHYLPENTANE | 2.8 | 11.0 | 3.3 | 1.9 | 2.6 | 3.0 | 5.9 | 5.6 |
| n-HEPTANE | 4.2 | 13.6 | 2.7 | 1.7 | 3.2 | 2.6 | 11.3 | 4.5 |
| METHYLCYCLOHEXANE | 2.8 | 9.9 | 2.1 | 1.5 | 2.5 | 2.0 | 8.5 | 2.2 |
| 2,5-DIMETHYLHEXANE | 1.0 | 2.6 | 0.5 | 0.4 | 0.4 | * | 1.0 | 0.9 |
| 2,4-DIMETHYLHEXANE | 0.9 | 2.6 | 0.6 | 0.4 | 0.5 | 0.6 | 1.6 | 1.3 |
| 2,3,4-TRIMETHYLPENTANE | 1.1 | 3.0 | 1.0 | 0.7 | 0.9 | 0.6 | 2.0 | 2.1 |
| 2-METHYLHEPTANE | 2.9 | 5.7 | 1.4 | 0.8 | 1.2 | 1.1 | 5.5 | 2.1 |
| 3-METHYLHEPTANE | 1.7 | 3.5 | 0.8 | 0.5 | 0.8 | 0.7 | 3.2 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 2.6 | 1.3 | 0.5 | 0.5 | 0.9 | 2.8 | 1.4 |
| n-OCTANE | 3.2 | 6.4 | 1.7 | 1.8 | 2.1 | 1.3 | 6.4 | 2.1 |
| 2,4-DIMETHYLHEPTANE | * | 1.2 | 0.4 | 1.1 | 0.6 | 0.5 | 1.0 | 0.5 |
| 4-METHYLOCTANE | 0.9 | 2.9 | 1.2 | 0.9 | 1.6 | 0.8 | 3.6 | 1.3 |
| 3-METHYLOCTANE | 1.6 | 2.0 | 0.8 | 0.8 | 1.1 | 0.8 | 2.7 | 0.8 |
| n-NONANE | * | 3.9 | 2.7 | 1.3 | 2.3 | 0.8 | 4.5 | 4.3 |
| 4-METHYLNONANE | * | 1.1 | 0.8 | * | * | 1.2 | 2.1 | * |
| n-DECANE | 1.2 | 3.3 | 2.2 | 2.2 | 4.6 | 0.3 | 5.2 | 1.0 |
| SUM OTHER PARAFFINS | 23.0 | 41.4 | 14.3 | 7.1 | 13.1 | 21.0 | 41.6 | 13.6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 6.3 | 16.0 | 7.5 | 5.4 | 5.1 | 4.9 | 14.8 | * |
| PROPENE | 9.1 | 47.7 | 2.4 | 1.2 | 1.4 | 1.2 | 11.9 | 4.7 |
| 2-METHYLPROPYLENE,BUTENE-1 | 4.4 | 12.2 | 3.0 | 2.2 | 1.9 | * | 8.3 | 4.1 |
| 1,3-BUTADIENE | 0.2 | 1.1 | 0.3 | * | * | * | 0.2 | * |
| t-2-BUTENE | 2.4 | 5.5 | 1.0 | 0.4 | 0.9 | * | 3.8 | * |
| c-2-BUTENE | 1.7 | 4.1 | 0.8 | 0.3 | 0.7 | 1.0 | 2.7 | * |
| 1-PENTENE | 1.7 | 4.0 | 0.9 | 0.2 | 0.7 | 1.2 | 2.0 | 0.5 |
| 2-METHYL-1-BUTENE | 2.6 | 6.4 | 1.3 | 0.4 | 1.0 | 1.9 | 3.1 | 0.9 |
| ISOPRENE | 0.8 | 2.0 | 1.6 | 3.2 | 2.6 | 2.3 | 3.5 | 0.4 |
| t-2-PENTENE | 2.8 | 6.0 | 1.2 | 0.5 | 1.0 | 1.0 | 2.6 | 0.6 |
| c-2-PENTENE | 3.5 | 6.8 | 1.4 | 0.8 | 0.9 | 0.6 | 3.0 | 0.2 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.7 | 2.4 | * | * | * | * | * | 0.2 |
| 2-METHYL-2-PENTENE | 0.6 | 1.7 | 0.0 | * | * | * | 0.8 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.2 | 0.9 | 0.5 | 0.3 | 0.2 | 1.3 | 1.0 | 1.0 |
| a-PINENE | 1.0 | * | * | 0.1 | * | 0.2 | * | 0.4 |
| SUM OTHER OLEFINS | 9.4 | 27.3 | 36.5 | 2.2 | 3.8 | 2.7 | 18.7 | 13.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 7.4 | 13.7 | 3.8 | 3.0 | 3.5 | 4.6 | 8.1 | 7.6 |
| TOLUENE | 24.5 | 40.7 | 10.3 | 7.1 | 9.5 | 10.0 | 24.7 | 24.0 |
| ETHYLBENZENE | 2.0 | 5.2 | 1.6 | 1.2 | 1.4 | 1.5 | 5.3 | 4.3 |
| m&p-XYLENE | 8.6 | 18.3 | 6.7 | 5.1 | 6.6 | 6.1 | 16.0 | 16.3 |
| o-XYLENE | 3.4 | 7.7 | 3.4 | 2.7 | 3.1 | 3.7 | 6.8 | 6.5 |
| n-PROPYLBENZENE | 0.4 | 1.1 | 0.4 | 0.3 | 0.5 | 0.3 | 1.0 | 0.8 |
| m-ETHYLTOLUENE | 2.0 | 4.1 | 1.7 | 1.4 | 1.7 | * | 3.7 | 4.0 |
| p-ETHYLTOLUENE | 1.6 | 2.4 | 1.1 | 0.8 | 1.3 | 1.4 | 2.5 | 2.0 |
| 1,3,5-TRIMETHYLBENZENE | 1.5 | 2.2 | 1.6 | 1.3 | 1.1 | * | 2.1 | 2.8 |
| o-ETHYLTOLUENE | 1.2 | 2.3 | 1.3 | 1.1 | 2.0 | 1.0 | 3.1 | 1.7 |
| 1,2,4-TRIMETHYLBENZENE | 9.5 | 14.0 | 8.2 | 10.6 | 9.0 | 10.6 | 13.3 | 13.0 |
| n-DECANE | * | 2.0 | 0.7 | 0.5 | 1.0 | * | 1.5 | 1.3 |
| 1,4-DIETHYLBENZENE | * | 1.4 | 0.8 | 0.4 | 0.7 | * | 1.6 | 2.0 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.6 | 2.9 | 0.9 | 0.7 | 1.5 | * | 3.0 | 1.3 |
| SUM OTHER AROMATICS | 26.9 | 22.8 | 9.2 | 9.7 | 9.4 | 8.0 | 24.1 | 17.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 1.4 | 8.6 | 3.2 | 3.2 | 3.4 | 3.5 | 7.3 | * |
| SUM UNKNOWNS | 1.8 | 1.6 | 3.0 | * | 3.0 | 1.4 | 3.1 | 17.1 |
| SUM PARAFFINS | 384.5 | 797.4 | 234.9 | 172.3 | 294.0 | 316.1 | 788.7 | 205.8 |
| SUM OLEFINS | 48.2 | 144.9 | 59.1 | 17.8 | 20.6 | 18.8 | 76.8 | 27.9 |
| SUM AROMATICS | 91.0 | 141.4 | 52.5 | 46.6 | 53.3 | 47.5 | 117.4 | 105.9 |
| SUM HYDROCARBONS | 527.1 | 1094.0 | 354.4 | 240.4 | 374.5 | 387.4 | 993.5 | 356.9 |

TABLE A-41b. Hydrocarbon concentration data for TULSA, OK

| Compound | ID Number and Sample Date<br>2234<br>86/08/13 | 2361<br>86/08/19 | 2539<br>86/08/28 | 2755<br>86/09/12 | 2777<br>86/09/15 | 2940<br>86/09/25 |
|---|---|---|---|---|---|---|
| **PARAFFINS** | | | | | | |
| ETHANE | 29.6 | 79.2 | 13.2 | 222.5 | 47.0 | 18.5 |
| PROPANE | 20.4 | 70.5 | 8.7 | 319.4 | 45.2 | 17.5 |
| ISOBUTANE | 4.5 | 30.2 | 4.2 | 145.1 | 18.9 | 8.4 |
| n-BUTANE | 13.0 | 61.4 | 17.0 | 308.5 | 55.0 | 31.4 |
| ISOPENTANE | 8.1 | 49.6 | 17.8 | 189.8 | 35.8 | 21.5 |
| n-PENTANE | 5.2 | 32.8 | 9.9 | 131.3 | 22.6 | 11.7 |
| 2,2-DIMETHYLBUTANE | 0.2 | 1.7 | 0.5 | 7.6 | 0.9 | 0.5 |
| CYCLOPENTANE | 0.3 | 3.9 | 0.9 | 12.2 | 1.9 | 1.2 |
| 2,3-DIMETHYLBUTANE | 1.4 | 5.5 | 2.3 | 17.2 | 3.5 | 1.2 |
| 2-METHYLPENTANE | 2.6 | 19.0 | 7.3 | 73.6 | 11.3 | 4.8 |
| 3-METHYLPENTANE | 5.0 | 12.8 | 4.6 | 68.5 | 7.3 | 2.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 2.3 | 14.9 | 6.3 | 95.0 | 9.4 | 4.0 |
| METHYLCYCLOPENTANE | 1.3 | 13.2 | 3.3 | 41.2 | 5.2 | 2.2 |
| 2,4-DIMETHYLPENTANE | 0.5 | 4.7 | 2.7 | 12.2 | 3.0 | 0.8 |
| CYCLOHEXANE | * | 5.5 | 1.1 | 43.9 | 5.4 | * |
| 2-METHYLHEXANE | * | * | * | 24.8 | * | 2.7 |
| 2,3-DIMETHYLPENTANE | 1.4 | 14.4 | 7.1 | 17.4 | 8.7 | * |
| 3-METHYLHEXANE | 0.7 | 8.0 | 4.0 | 27.7 | 4.3 | 1.4 |
| 2,2,4-TRIMETHYLPENTANE | 1.4 | 10.3 | 6.8 | 27.7 | 8.0 | 2.6 |
| n-HEPTANE | 1.1 | 8.5 | 3.9 | 38.0 | 3.3 | 1.7 |
| METHYLCYCLOHEXANE | 0.8 | 8.0 | 1.7 | 28.1 | 2.8 | 1.2 |
| 2,5-DIMETHYLHEXANE | 0.3 | 2.8 | 0.3 | 7.8 | 1.8 | 0.6 |
| 2,4-DIMETHYLHEXANE | 0.3 | 2.7 | 1.4 | 7.5 | 1.9 | 0.5 |
| 2,3,4-TRIMETHYLPENTANE | 1.2 | 3.7 | 2.4 | 9.4 | 2.3 | 0.7 |
| 2-METHYLHEPTANE | 0.5 | 3.2 | * | 17.7 | 2.3 | 0.5 |
| 3-METHYLHEPTANE | 0.3 | 3.4 | 2.0 | 11.4 | 2.1 | 0.6 |
| 2,2,5-TRIMETHYLHEXANE | * | 2.7 | 2.4 | 6.7 | 2.6 | 1.3 |
| n-OCTANE | 1.4 | 4.4 | 1.5 | 19.4 | 3.2 | 1.1 |
| 2,4-DIMETHYLHEPTANE | 0.5 | 1.1 | 0.5 | 2.0 | 1.1 | 0.5 |
| 4-METHYLOCTANE | 0.5 | 2.6 | * | 7.5 | 2.0 | 0.6 |
| 3-METHYLOCTANE | 0.2 | 1.6 | 1.1 | 6.3 | 1.4 | 0.5 |
| n-NONANE | 0.7 | 2.1 | 0.8 | 11.7 | 1.7 | 0.6 |
| 4-METHYLNONANE | 0.9 | * | * | 3.3 | * | * |
| n-DECANE | 0.7 | 2.3 | 1.0 | 12.9 | 1.9 | 1.1 |
| SUM OTHER PARAFFINS | 21.5 | 36.5 | 40.6 | 153.8 | 26.7 | 5.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| OLEFINS | | | | | | |
| ETHYLENE | 4.8 | 25.7 | 18.7 | 49.8 | 22.4 | 3.6 |
| PROPENE | 0.9 | 10.3 | 6.8 | 32.0 | 5.8 | 1.3 |
| 2-METHYLPROPYLENE, BUTENE-1 | 1.0 | 7.1 | 4.5 | 28.8 | 5.1 | 2.1 |
| 1,3-BUTADIENE | * | 2.1 | 0.9 | 3.1 | 1.1 | 0.2 |
| t-2-BUTENE | * | 2.5 | 1.4 | 16.8 | 1.9 | 1.1 |
| c-2-BUTENE | 0.1 | 1.7 | 1.0 | 12.5 | 1.5 | 0.9 |
| 1-PENTENE | * | 1.6 | 0.8 | 11.4 | 1.4 | 0.8 |
| 2-METHYL-1-BUTENE | * | 2.9 | 1.2 | 18.2 | 2.2 | 1.2 |
| ISOPRENE | 1.2 | 1.4 | 0.6 | 3.6 | 0.8 | 0.5 |
| t-2-PENTENE | * | 3.0 | 1.2 | 20.0 | 2.2 | 1.2 |
| c-2-PENTENE | 0.6 | 4.1 | * | 25.8 | 2.9 | 1.4 |
| 2-METHYL-1-PENTENE, 1-HEXENE | * | 0.6 | 0.7 | 7.5 | 0.5 | * |
| 2-METHYL-2-PENTENE | * | 1.3 | 1.7 | 6.3 | 0.7 | * |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.3 | 4.6 | 1.3 | 5.0 | 1.1 | 0.4 |
| a-PINENE | 0.3 | * | * | 1.8 | * | * |
| SUM OTHER OLEFINS | 3.0 | 28.3 | 8.8 | 104.1 | 8.3 | 6.8 |
| AROMATICS | | | | | | |
| BENZENE | 2.1 | 14.8 | 7.7 | 65.1 | 9.2 | 2.5 |
| TOLUENE | 4.9 | 43.4 | 27.9 | 162.5 | 25.4 | 6.7 |
| ETHYLBENZENE | 0.9 | 7.2 | 4.1 | 16.7 | 4.6 | 1.0 |
| m&p-XYLENE | 4.4 | 27.3 | 15.3 | 57.8 | 16.6 | 4.0 |
| o-XYLENE | 8.0 | 10.9 | 6.8 | 24.1 | 6.5 | 1.9 |
| n-PROPYLBENZENE | 0.2 | 2.0 | 1.7 | 3.6 | 1.2 | 0.2 |
| m-ETHYLTOLUENE | 0.9 | 6.8 | 3.5 | 11.7 | 3.6 | 1.1 |
| p-ETHYLTOLUENE | 0.7 | 3.3 | 1.9 | 6.3 | 2.0 | 0.5 |
| 1,3,5-TRIMETHYLBENZENE | * | 4.5 | 2.3 | 6.8 | 2.5 | 0.8 |
| o-ETHYLTOLUENE | 0.6 | 3.1 | 1.5 | 6.5 | 1.8 | 0.7 |
| 1,2,4-TRIMETHYLBENZENE | 14.4 | 18.7 | 11.2 | 31.3 | 12.1 | 5.1 |
| n-DECANE | * | 2.8 | 1.5 | 6.1 | 1.1 | 0.4 |
| 1,4-DIETHYLBENZENE | * | 3.1 | 1.5 | 5.6 | 1.5 | 0.4 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 0.4 | 2.3 | 0.7 | 10.6 | 1.1 | * |
| SUM OTHER AROMATICS | 4.2 | 35.2 | 9.2 | 74.0 | 8.5 | 6.5 |
| SUMMARY | | | | | | |
| ACETYLENE | 2.4 | 18.8 | 12.9 | 23.3 | 7.2 | 2.5 |
| SUM UNKNOWNS | 6.2 | 0.8 | 1.5 | 4.2 | 0.8 | * |
| SUM PARAFFINS | 130.2 | 524.6 | 178.6 | 2130.2 | 352.2 | 151.0 |
| SUM OLEFINS | 12.5 | 97.8 | 50.3 | 347.3 | 58.6 | 22.1 |
| SUM AROMATICS | 42.3 | 186.0 | 97.5 | 489.4 | 98.5 | 32.5 |
| SUM HYDROCARBONS | 193.8 | 828.2 | 340.8 | 2994.6 | 517.5 | 208.4 |

TABLE A-42a. Hydrocarbon concentration data for TRENTON, NJ

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1499 86/06/27 | 1531 86/07/03 | 1686 86/07/10 | 1703 86/07/14 | 1919 86/07/23 | 2012 86/07/30 | 2207 86/08/07 | 2425 86/08/21 |
| PARAFFINS | | | | | | | | |
| ETHANE | 21.3 | 31.7 | 38.3 | 25.8 | 80.9 | 29.1 | 16.2 | 13.7 |
| PROPANE | 30.3 | 66.4 | 38.5 | 24.0 | 89.4 | 40.2 | 38.9 | 10.1 |
| ISOBUTANE | 18.9 | 19.5 | 9.0 | 17.7 | 41.7 | 26.5 | 24.9 | 25.9 |
| n-BUTANE | 38.2 | 23.8 | 14.4 | 30.8 | 66.8 | 50.1 | 42.1 | 48.3 |
| ISOPENTANE | 39.2 | 32.0 | 19.1 | 38.7 | 78.1 | 61.5 | 50.1 | 51.9 |
| n-PENTANE | 17.3 | 12.5 | 7.8 | 15.1 | 29.7 | 25.2 | 21.6 | 18.0 |
| 2,2-DIMETHYLBUTANE | 1.3 | 0.4 | 0.6 | 1.0 | 3.0 | 1.7 | 1.3 | 1.1 |
| CYCLOPENTANE | 1.7 | 1.3 | 0.6 | 1.2 | 3.0 | 2.2 | 1.6 | 1.3 |
| 2,3-DIMETHYLBUTANE | 3.2 | 2.1 | 1.4 | 2.8 | 6.6 | 4.8 | 3.3 | 3.5 |
| 2-METHYLPENTANE | 11.6 | 9.4 | 5.2 | 9.7 | 25.6 | 16.4 | 11.4 | 12.5 |
| 3-METHYLPENTANE | 8.1 | 7.0 | 3.8 | 6.6 | 16.0 | 12.0 | 6.8 | 9.9 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.6 | 7.8 | 3.3 | 5.8 | 14.6 | 10.0 | 6.2 | 10.4 |
| METHYLCYCLOPENTANE | 4.7 | 4.1 | 2.1 | 3.9 | 9.0 | 6.8 | 4.2 | 4.7 |
| 2,4-DIMETHYLPENTANE | 2.3 | 1.5 | 0.9 | 1.8 | 3.7 | 3.0 | 1.8 | 1.7 |
| CYCLOHEXANE | 1.4 | 2.2 | 0.4 | 0.9 | 1.9 | 1.9 | 1.0 | 0.9 |
| 2-METHYLHEXANE | 11.6 | 12.4 | 2.0 | 8.1 | 12.8 | 14.9 | 3.5 | 6.1 |
| 2,3-DIMETHYLPENTANE | * | * | 2.1 | * | * | * | 2.4 | * |
| 3-METHYLHEXANE | 8.9 | 10.4 | 2.2 | 3.7 | 8.0 | 11.0 | 4.0 | 3.9 |
| 2,2,4-TRIMETHYLPENTANE | 6.9 | 4.4 | 3.1 | 6.2 | 11.8 | 10.3 | 6.0 | 5.8 |
| n-HEPTANE | 7.9 | 10.2 | 2.5 | 2.5 | 5.5 | 12.1 | 4.2 | 3.0 |
| METHYLCYCLOHEXANE | 3.1 | 5.9 | 1.7 | 2.1 | 4.8 | 6.6 | 2.3 | 2.6 |
| 2,5-DIMETHYLHEXANE | 1.6 | 1.5 | 0.7 | 1.2 | 2.6 | 2.8 | 1.2 | 0.6 |
| 2,4-DIMETHYLHEXANE | 1.6 | 1.3 | 0.7 | 1.3 | 2.7 | 2.4 | 1.3 | 1.2 |
| 2,3,4-TRIMETHYLPENTANE | 3.0 | 2.0 | 1.3 | 2.2 | 4.7 | 3.8 | 2.4 | 2.2 |
| 2-METHYLHEPTANE | 2.3 | 3.3 | 0.7 | 1.8 | 5.1 | 3.1 | 2.2 | 2.0 |
| 3-METHYLHEPTANE | 2.4 | 2.4 | 1.2 | 2.0 | 4.2 | 3.1 | 2.0 | 1.5 |
| 2,2,5-TRIMETHYLHEXANE | 2.4 | 1.3 | 0.5 | 0.7 | 1.9 | 1.6 | 1.1 | 1.4 |
| n-OCTANE | 4.9 | 5.5 | 2.0 | 2.7 | 4.1 | 3.0 | 5.7 | 2.7 |
| 2,4-DIMETHYLHEPTANE | 1.2 | 2.1 | 3.8 | * | 1.2 | 1.1 | 0.8 | 0.8 |
| 4-METHYLOCTANE | 4.4 | 3.3 | 1.8 | 2.9 | 4.2 | 2.5 | 2.3 | 2.4 |
| 3-METHYLOCTANE | 3.0 | 3.0 | 1.7 | 2.3 | 3.7 | 3.6 | 2.2 | 1.8 |
| n-NONANE | 7.0 | 5.9 | 4.3 | 6.0 | 6.0 | 4.6 | 4.9 | 3.7 |
| 4-METHYLNONANE | * | * | * | 2.0 | * | 1.7 | * | * |
| n-DECANE | 8.8 | 15.7 | 6.1 | 13.2 | 12.4 | 10.7 | 6.6 | 5.4 |
| SUM OTHER PARAFFINS | 43.2 | 77.3 | 21.2 | 52.6 | 74.8 | 60.9 | 31.7 | 25.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 27.2 | 23.0 | 25.9 | 22.9 | 57.0 | 34.3 | 20.0 | 16.4 |
| PROPENE | 12.7 | 18.0 | 16.9 | 10.5 | 40.4 | 14.5 | 12.2 | 7.7 |
| 2-METHYLPROPYLENE, BUTENE-1 | 7.8 | 5.5 | 3.9 | 6.4 | 13.1 | 9.2 | 8.8 | 7.8 |
| 1,3-BUTADIENE | 1.4 | 0.7 | * | 0.4 | 0.5 | 0.4 | 0.4 | 0.3 |
| t-2-BUTENE | 2.8 | 2.0 | 1.0 | 2.5 | 5.5 | 3.3 | 3.0 | 4.3 |
| c-2-BUTENE | 2.1 | 1.7 | 1.0 | 2.2 | 4.8 | 3.1 | 3.3 | 4.0 |
| 1-PENTENE | 1.8 | 0.7 | 0.4 | 1.6 | 2.0 | 2.4 | 2.1 | 2.6 |
| 2-METHYL-1-BUTENE | 2.7 | 1.7 | 5.3 | 2.6 | 7.9 | 3.8 | 2.9 | 3.4 |
| ISOPRENE | 1.6 | 0.7 | 0.3 | 2.2 | 1.1 | 1.2 | 0.9 | 0.5 |
| t-2-PENTENE | 2.7 | 1.8 | 1.1 | 2.5 | 4.8 | 3.2 | 3.0 | 3.9 |
| c-2-PENTENE | 3.7 | * | 2.6 | 3.7 | 7.7 | 4.1 | 4.3 | 5.3 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 2.6 | 4.5 | 0.1 | 0.5 | 2.3 | 9.1 | 0.7 | 0.4 |
| 2-METHYL-2-PENTENE | 1.0 | 0.7 | 0.3 | 1.0 | 1.8 | 1.3 | 0.9 | 1.2 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.1 | 4.7 | 1.4 | 1.4 | 5.4 | 3.8 | 1.3 | 1.7 |
| a-PINENE | * | 6.6 | * | 0.9 | 1.4 | 1.5 | 0.9 | * |
| SUM OTHER OLEFINS | 21.1 | 32.9 | 5.7 | 13.1 | 27.2 | 18.4 | 14.6 | 12.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 14.2 | 8.3 | 7.9 | 11.1 | 23.6 | 16.7 | 11.2 | 8.6 |
| TOLUENE | 62.7 | 73.0 | 25.0 | 39.2 | 94.9 | 79.0 | 52.3 | 56.8 |
| ETHYLBENZENE | 8.5 | 11.5 | 6.9 | 6.8 | 14.8 | 12.0 | 9.4 | 5.0 |
| m&p-XYLENE | 28.8 | 37.4 | 25.3 | 23.2 | 46.4 | 36.6 | 31.9 | 17.3 |
| o-XYLENE | 12.7 | 13.4 | 9.7 | 9.9 | 16.9 | 13.7 | 10.6 | 7.1 |
| n-PROPYLBENZENE | 3.3 | 2.3 | 1.7 | 2.6 | 3.5 | 2.4 | 1.8 | 1.2 |
| m-ETHYLTOLUENE | 9.8 | 5.8 | 6.5 | 8.6 | 10.9 | 8.2 | 7.2 | 4.4 |
| p-ETHYLTOLUENE | 6.1 | 4.2 | 3.8 | 5.1 | 6.4 | 4.8 | 4.3 | 2.7 |
| 1,3,5-TRIMETHYLBENZENE | 7.0 | 5.8 | 3.2 | 5.0 | 8.7 | 4.2 | 5.6 | 3.6 |
| o-ETHYLTOLUENE | 5.2 | 4.3 | 3.3 | 5.1 | 6.1 | 4.8 | 3.7 | 2.6 |
| 1,2,4-TRIMETHYLBENZENE | 20.8 | 19.0 | 13.8 | 22.4 | 25.4 | 21.4 | 15.7 | 12.2 |
| n-DECANE | 3.4 | 3.3 | * | 3.7 | 4.2 | 3.3 | 2.2 | 1.9 |
| 1,4-DIETHYLBENZENE | 3.1 | 3.5 | 2.0 | 4.4 | 3.8 | 4.1 | 2.9 | 1.7 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 4.3 | * | 3.1 | 15.8 | 9.0 | 4.8 | 4.1 | 3.3 |
| SUM OTHER AROMATICS | 25.8 | 77.6 | 49.1 | 85.0 | 55.9 | 40.2 | 39.5 | 20.7 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 15.0 | 6.5 | 5.9 | 11.8 | 28.1 | 19.4 | 12.3 | 29.2 |
| SUM UNKNOWNS | 1.4 | 3.8 | 1.6 | 4.5 | 56.4 | 1.2 | 11.5 | 1.6 |
| SUM PARAFFINS | 332.9 | 390.7 | 206.5 | 300.9 | 642.0 | 452.5 | 319.6 | 287.5 |
| SUM OLEFINS | 93.9 | 105.7 | 66.7 | 74.9 | 183.6 | 114.4 | 80.1 | 72.3 |
| SUM AROMATICS | 216.3 | 270.0 | 162.0 | 248.6 | 331.2 | 256.9 | 203.2 | 149.8 |
| SUM HYDROCARBONS | 659.6 | 777.2 | 442.8 | 640.9 | 1241.3 | 844.5 | 626.9 | 541.3 |

TABLE A-42b. Hydrocarbon concentration data for TRENTON, NJ

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2612 86/09/02 | 2711 86/09/09 | 2789 86/09/12 | 2790 86/09/12 | 2869 86/09/18 | 2903 86/09/22 | 2908 86/09/19 | 2956 86/09/24 |
| PARAFFINS | | | | | | | | |
| ETHANE | 28.4 | 82.1 | 19.4 | 19.1 | 27.4 | 34.5 | 28.4 | 54.3 |
| PROPANE | 22.8 | 81.6 | 44.9 | 44.3 | 43.0 | 30.6 | 33.9 | 64.0 |
| ISOBUTANE | 17.2 | 52.1 | 38.4 | 37.9 | 28.3 | 26.3 | 24.3 | 41.7 |
| n-BUTANE | 29.5 | 86.5 | 41.1 | 40.6 | 49.3 | 47.1 | 42.5 | 73.0 |
| ISOPENTANE | 34.3 | 103.4 | 40.0 | 39.6 | 58.3 | 54.0 | 50.7 | 89.0 |
| n-PENTANE | 14.7 | 43.1 | 17.2 | 16.7 | 26.6 | 26.0 | 20.4 | 32.8 |
| 2,2-DIMETHYLBUTANE | 1.5 | 3.1 | 1.1 | 1.1 | 2.2 | 1.8 | 3.2 | 4.1 |
| CYCLOPENTANE | 1.4 | 4.2 | 1.5 | 1.5 | 2.6 | 2.0 | 2.4 | 3.5 |
| 2,3-DIMETHYLBUTANE | 3.1 | 9.8 | 2.8 | 2.8 | 5.1 | 4.4 | 6.3 | 8.8 |
| 2-METHYLPENTANE | 12.4 | 38.1 | 10.5 | 10.4 | 17.8 | 16.3 | 25.8 | 31.4 |
| 3-METHYLPENTANE | 8.6 | 45.4 | 6.9 | 6.8 | 11.2 | 11.2 | 18.2 | 21.7 |
| n-HEXANE,2-ETHYL-1-BUTENE | 7.0 | 25.8 | 7.7 | 7.6 | 10.9 | 11.3 | 20.2 | 20.1 |
| METHYLCYCLOPENTANE | 4.3 | 15.0 | 4.7 | 4.6 | 6.6 | 6.9 | 8.8 | 25.0 |
| 2,4-DIMETHYLPENTANE | 1.9 | 6.2 | 1.5 | 1.5 | 3.6 | 2.6 | 3.2 | 6.3 |
| CYCLOHEXANE | 0.8 | 6.2 | 1.5 | 1.5 | 1.7 | 1.6 | 1.4 | 2.3 |
| 2-METHYLHEXANE | 7.6 | 29.9 | 5.8 | 5.7 | 11.9 | 9.9 | 17.5 | 12.2 |
| 2,3-DIMETHYLPENTANE | * | * | * | * | * | * | * | 7.3 |
| 3-METHYLHEXANE | 3.6 | 18.9 | 3.7 | 4.0 | 7.5 | 6.3 | 7.7 | 11.1 |
| 2,2,4-TRIMETHYLPENTANE | 7.1 | 24.7 | 5.7 | 6.9 | 12.2 | 10.1 | 10.6 | 20.6 |
| n-HEPTANE | 2.1 | 23.4 | 3.5 | 3.5 | 6.2 | 4.7 | 7.2 | 9.3 |
| METHYLCYCLOHEXANE | 2.2 | 15.3 | 2.7 | 2.7 | 4.5 | 3.5 | 11.6 | 11.1 |
| 2,5-DIMETHYLHEXANE | 1.6 | 5.5 | 1.5 | 1.5 | 2.9 | 2.8 | 3.0 | 4.6 |
| 2,4-DIMETHYLHEXANE | 1.4 | 5.8 | 1.4 | 1.4 | 2.8 | 2.2 | 2.7 | 4.8 |
| 2,3,4-TRIMETHYLPENTANE | 2.6 | 9.3 | 2.0 | 2.0 | 5.0 | 4.1 | 4.3 | 8.8 |
| 2-METHYLHEPTANE | 2.6 | 10.6 | 2.5 | 2.1 | 3.9 | 2.9 | 4.0 | 7.6 |
| 3-METHYLHEPTANE | 2.2 | 8.6 | 2.0 | 2.1 | 4.1 | 3.0 | 4.0 | 7.9 |
| 2,2,5-TRIMETHYLHEXANE | 1.2 | 4.3 | 2.0 | 1.8 | 3.6 | 1.7 | 1.7 | 3.5 |
| n-OCTANE | 5.1 | 19.2 | 4.8 | 4.8 | 6.5 | 5.5 | 6.0 | 9.8 |
| 2,4-DIMETHYLHEPTANE | 1.4 | 3.4 | 0.8 | 1.1 | 1.0 | 0.8 | 1.7 | 2.5 |
| 4-METHYLOCTANE | 2.7 | 8.9 | 6.5 | 6.5 | 6.5 | 2.3 | 3.7 | 6.8 |
| 3-METHYLOCTANE | 2.0 | 8.6 | 4.8 | 4.8 | 4.6 | 7.8 | 3.2 | 6.7 |
| n-NONANE | 3.0 | 15.9 | 13.5 | 13.6 | 11.6 | 2.6 | 5.9 | 9.0 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 4.6 | 29.0 | 13.0 | 12.4 | 15.4 | 5.9 | 8.7 | 11.5 |
| SUM OTHER PARAFFINS | 29.2 | 189.7 | 59.6 | 57.1 | 97.3 | 43.2 | 69.0 | 99.8 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 27.8 | 95.2 | 32.3 | 27.3 | 56.0 | 50.0 | 44.5 | 81.1 |
| PROPENE | 14.1 | 44.0 | 16.9 | 16.4 | 19.9 | 19.1 | 18.4 | 39.2 |
| 2-METHYLPROPYLENE,BUTENE-1 | 6.4 | 22.6 | 14.0 | 13.7 | 11.9 | 11.1 | 10.7 | 20.8 |
| 1,3-BUTADIENE | 0.3 | 4.5 | 1.1 | 0.9 | 2.8 | 1.9 | 2.2 | 5.0 |
| t-2-BUTENE | 1.9 | 10.9 | 6.7 | 6.5 | 5.3 | 5.6 | 5.0 | 10.3 |
| c-2-BUTENE | 2.0 | 8.2 | 4.6 | 4.5 | 4.0 | 4.3 | 3.8 | 7.6 |
| 1-PENTENE | * | 0.1 | 2.2 | 2.2 | 2.9 | 2.8 | * | 3.3 |
| 2-METHYL-1-BUTENE | 1.9 | 8.2 | 3.3 | 3.2 | 3.4 | 3.4 | 4.7 | 7.7 |
| ISOPRENE | 0.4 | 3.1 | 0.9 | 0.9 | 1.6 | 1.2 | 1.0 | 2.6 |
| t-2-PENTENE | 2.1 | 9.1 | 3.6 | 3.5 | 4.7 | 4.5 | 4.5 | 9.2 |
| c-2-PENTENE | 1.7 | 4.8 | 7.5 | 7.0 | 6.5 | 7.2 | 7.3 | 17.6 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.1 | 8.3 | 1.5 | 1.3 | 4.8 | 1.0 | 6.6 | 9.4 |
| 2-METHYL-2-PENTENE | 0.9 | 4.7 | 1.3 | 1.3 | 2.0 | 1.8 | 2.1 | 4.7 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.5 | 10.4 | 1.5 | 1.5 | 2.7 | 2.8 | 2.9 | 5.3 |
| a-PINENE | * | 7.6 | * | 1.7 | 0.8 | 1.0 | 0.7 | 3.6 |
| SUM OTHER OLEFINS | 9.2 | 175.9 | 18.7 | 17.8 | 37.3 | 26.5 | 21.0 | 62.4 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 11.8 | 36.5 | 11.2 | 11.2 | 21.0 | 17.4 | 18.4 | 35.0 |
| TOLUENE | 44.4 | 251.3 | 44.5 | 44.3 | 86.5 | 94.1 | 101.5 | 138.7 |
| ETHYLBENZENE | 7.2 | 38.1 | 11.0 | 11.1 | 13.7 | 12.3 | 11.6 | 24.2 |
| m&p-XYLENE | 24.3 | 112.5 | 39.6 | 39.8 | 46.1 | 38.6 | 41.4 | 81.0 |
| o-XYLENE | 9.7 | 38.8 | 17.2 | 14.2 | 19.6 | 13.5 | 15.6 | 31.2 |
| n-PROPYLBENZENE | 1.9 | 12.8 | 5.1 | 5.1 | 5.7 | 3.8 | 2.9 | 8.9 |
| m-ETHYLTOLUENE | 7.7 | 21.9 | 16.9 | 17.2 | 16.5 | 9.9 | 11.1 | 25.6 |
| p-ETHYLTOLUENE | 4.2 | 13.9 | 10.3 | 10.4 | 9.8 | 5.5 | 6.1 | 13.2 |
| 1,3,5-TRIMETHYLBENZENE | 4.8 | 19.0 | 12.5 | 12.6 | 12.3 | 6.6 | 8.5 | 16.0 |
| o-ETHYLTOLUENE | 4.2 | 14.3 | 8.2 | 8.3 | 8.9 | 5.1 | 5.7 | 11.2 |
| 1,2,4-TRIMETHYLBENZENE | 16.9 | 41.2 | 18.3 | 19.0 | 29.4 | 20.6 | 24.1 | 43.5 |
| n-DECANE | 2.3 | 16.5 | 6.1 | 6.2 | 5.0 | 4.1 | 4.2 | 10.3 |
| 1,4-DIETHYLBENZENE | 2.0 | 11.1 | 3.5 | 3.6 | 5.7 | 4.8 | 5.3 | 8.1 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.2 | 20.7 | 6.7 | 7.0 | 8.4 | 3.8 | 4.4 | 10.4 |
| SUM OTHER AROMATICS | 47.1 | 138.9 | 33.7 | 36.3 | 56.0 | 53.7 | 57.5 | 106.6 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 17.3 | 42.8 | 8.4 | 12.3 | 15.1 | 17.1 | 17.5 | 40.3 |
| SUM UNKNOWNS | 204.2 | 9.0 | 4.4 | 4.5 | 2.2 | 2.8 | 168.0 | 13.0 |
| SUM PARAFFINS | 271.4 | 1035.1 | 376.6 | 371.3 | 503.4 | 397.5 | 463.5 | 734.5 |
| SUM OLEFINS | 70.9 | 418.2 | 116.7 | 110.2 | 167.3 | 144.9 | 135.9 | 290.5 |
| SUM AROMATICS | 192.5 | 788.1 | 245.5 | 246.9 | 345.3 | 294.4 | 319.0 | 564.6 |
| SUM HYDROCARBONS | 756.4 | 2293.8 | 751.7 | 745.3 | 1033.5 | 856.9 | 1104.2 | 1643.1 |

## TABLE A-43a. Hydrocarbon concentration data for WASHINGTON DC

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1186<br>84/07/09 | 1197<br>85/06/17 | 1208<br>86/06/12 | 1220<br>84/07/11 | 1273<br>86/06/17 | 1316<br>84/07/17 | 1344<br>85/06/24 | 1464<br>84/07/26 |
| PARAFFINS | | | | | | | | |
| ETHANE | 16.8 | 19.9 | 10.9 | 22.1 | 10.5 | 13.8 | 13.4 | 7.2 |
| PROPANE | 39.5 | 11.3 | 7.8 | 18.8 | 6.3 | 10.8 | 8.6 | 7.7 |
| ISOBUTANE | 17.0 | 10.7 | 8.9 | 31.0 | 3.0 | 11.6 | 9.9 | 9.8 |
| n-BUTANE | 58.4 | 46.4 | 37.2 | 139.8 | 11.0 | 49.3 | 45.2 | 43.1 |
| ISOPENTANE | 95.6 | 45.4 | 34.1 | 123.3 | 9.5 | 54.4 | 27.3 | 48.6 |
| n-PENTANE | 87.0 | 18.9 | 13.1 | 48.3 | 3.7 | 22.5 | 20.8 | 19.9 |
| 2,2-DIMETHYLBUTANE | 3.3 | 1.4 | 0.8 | 3.1 | * | 1.6 | 1.3 | 1.5 |
| CYCLOPENTANE | 6.1 | 1.7 | 1.1 | 4.2 | 0.3 | 2.2 | 1.5 | 1.9 |
| 2,3-DIMETHYLBUTANE | 20.3 | 4.0 | 3.4 | 10.0 | 0.9 | 5.2 | 3.8 | 4.5 |
| 2-METHYLPENTANE | 61.0 | 15.1 | 9.4 | 33.9 | 2.6 | 18.3 | 13.3 | 16.2 |
| 3-METHYLPENTANE | 71.3 | 12.1 | 7.0 | 24.4 | 3.0 | 18.6 | 10.5 | 11.1 |
| n-HEXANE,2-ETHYL-1-BUTENE | 37.3 | 9.1 | 4.8 | 17.6 | 1.4 | 10.1 | 7.3 | 9.4 |
| METHYLCYCLOPENTANE | 22.3 | 5.5 | 3.8 | 12.6 | 1.0 | 7.0 | 4.9 | 6.4 |
| 2,4-DIMETHYLPENTANE | 8.7 | 2.8 | 1.9 | 6.0 | 0.4 | 3.5 | 2.3 | 3.0 |
| CYCLOHEXANE | 6.2 | 1.1 | 0.6 | 2.2 | 0.1 | 1.5 | 1.0 | 1.4 |
| 2-METHYLHEXANE | 9.0 | 8.5 | 5.1 | 9.6 | 1.5 | 6.1 | 3.7 | 5.2 |
| 2,3-DIMETHYLPENTANE | 6.6 | * | * | 7.7 | * | 5.8 | 3.1 | 3.6 |
| 3-METHYLHEXANE | 14.9 | 5.0 | 3.0 | 10.0 | 0.9 | * | 6.9 | 7.0 |
| 2,2,4-TRIMETHYLPENTANE | 12.9 | 8.5 | 7.7 | 18.9 | 1.9 | 12.9 | 9.5 | 11.5 |
| n-HEPTANE | 10.4 | 5.0 | 1.9 | 8.4 | 0.5 | 6.1 | 2.9 | 4.1 |
| METHYLCYCLOHEXANE | 5.0 | 2.9 | 1.6 | 4.6 | 0.5 | 2.8 | 2.0 | 2.5 |
| 2,5-DIMETHYLHEXANE | 2.9 | 1.8 | 1.5 | 3.2 | 0.2 | 2.9 | 1.7 | 2.2 |
| 2,4-DIMETHYLHEXANE | 3.3 | 2.3 | 1.5 | 4.5 | 0.3 | 4.5 | 2.2 | 2.6 |
| 2,3,4-TRIMETHYLPENTANE | 4.1 | 3.7 | 3.3 | 6.3 | 0.9 | 4.2 | 3.4 | 4.1 |
| 2-METHYLHEPTANE | 3.4 | 3.3 | 0.8 | 5.2 | 0.2 | 2.9 | 1.7 | 2.3 |
| 3-METHYLHEPTANE | 3.8 | 2.4 | 1.4 | 4.2 | 0.3 | 2.7 | 2.0 | 2.5 |
| 2,2,5-TRIMETHYLHEXANE | 1.7 | 1.8 | 1.5 | 2.4 | 1.2 | 1.6 | 1.4 | 1.6 |
| n-OCTANE | 4.5 | 4.1 | 1.6 | 3.2 | 0.5 | 2.0 | 1.2 | 1.8 |
| 2,4-DIMETHYLHEPTANE | 0.5 | * | 0.5 | 0.3 | 0.4 | * | * | * |
| 4-METHYLOCTANE | * | * | 1.2 | 1.3 | 0.7 | * | * | 0.6 |
| 3-METHYLOCTANE | 2.0 | 1.4 | 1.3 | 1.6 | 0.6 | 1.3 | 1.0 | 0.9 |
| n-NONANE | 5.3 | 2.5 | 1.7 | 3.8 | 0.8 | 1.2 | 1.3 | 2.5 |
| 4-METHYLNONANE | * | * | 2.8 | * | * | * | * | * |
| n-DECANE | 12.7 | 3.9 | 0.4 | 4.8 | 2.3 | 3.3 | 2.0 | 2.5 |
| SUM OTHER PARAFFINS | 108.7 | 87.0 | 25.7 | 71.1 | 6.7 | 125.1 | 77.8 | 32.0 |

|  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
| OLEFINS |  |  |  |  |  |  |  |  |
| ETHYLENE | 30.8 | 31.7 | 15.1 | 49.4 | 5.5 | 31.8 | 26.2 | 24.8 |
| PROPENE | 11.4 | 9.0 | 6.1 | 16.5 | 1.5 | 11.9 | 8.1 | 8.4 |
| 2-METHYLPROPYLENE,BUTENE-1 | 28.5 | 7.5 | 6.5 | 15.9 | 2.8 | 9.5 | 7.2 | 7.7 |
| 1,3-BUTADIENE | 3.0 | 1.9 | 1.1 | 2.3 | * | 2.5 | 1.7 | 1.8 |
| t-2-BUTENE | 8.5 | 2.9 | 2.1 | 6.9 | 0.5 | 3.7 | 2.3 | 3.3 |
| c-2-BUTENE | 6.0 | 2.0 | 1.6 | 7.3 | 0.3 | 2.8 | 1.9 | 2.4 |
| 1-PENTENE | 4.7 | 2.9 | 1.4 | 7.7 | * | 2.0 | 0.6 | 2.1 |
| 2-METHYL-1-BUTENE | 8.7 | 4.0 | 2.5 | 7.2 | * | 3.4 | 2.3 | 3.2 |
| ISOPRENE | 6.7 | 3.2 | 2.9 | 10.1 | * | 2.5 | 2.4 | 2.8 |
| t-2-PENTENE | 9.6 | 3.2 | 2.1 | 7.9 | * | 3.6 | 2.7 | 3.6 |
| c-2-PENTENE | 10.6 | 3.7 | 2.7 | 9.5 | * | 4.1 | 3.1 | 3.8 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.4 | 2.2 | 0.3 | 1.4 | 0.0 | * | 0.6 | 2.0 |
| 2-METHYL-2-PENTENE | 2.8 | 1.3 | 1.1 | 2.5 | 0.0 | 1.3 | 1.2 | 1.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 11.0 | 1.5 | 0.9 | 2.8 | 0.4 | 1.7 | 0.9 | 1.2 |
| a-PINENE | 3.2 | 20.7 | 1.0 | 1.5 | 0.1 | 0.9 | 6.7 | 0.7 |
| SUM OTHER OLEFINS | 138.3 | 51.3 | 9.1 | 63.3 | 1.6 | 88.6 | 40.5 | 36.6 |
| AROMATICS |  |  |  |  |  |  |  |  |
| BENZENE | 18.3 | 15.2 | 10.1 | 24.8 | 3.7 | 17.1 | 12.9 | 13.7 |
| TOLUENE | 128.9 | 44.3 | 29.5 | 73.6 | 10.4 | 43.8 | 35.1 | 42.5 |
| ETHYLBENZENE | 12.2 | 14.1 | 4.1 | 12.6 | 3.6 | 8.1 | 5.6 | 6.7 |
| m&p-XYLENE | 36.6 | 48.2 | 15.3 | 38.4 | 12.8 | 24.1 | 19.2 | 21.1 |
| o-XYLENE | 12.4 | 14.2 | 7.6 | 13.5 | 6.1 | 8.8 | 7.8 | 7.7 |
| n-PROPYLBENZENE | 5.4 | 3.1 | 0.9 | 3.8 | 0.3 | 2.8 | 2.1 | 2.1 |
| m-ETHYLTOLUENE | 16.0 | 8.4 | 4.4 | 12.6 | 1.3 | 8.9 | 7.9 | 7.1 |
| p-ETHYLTOLUENE | 9.0 | 4.1 | 2.5 | 6.8 | 1.1 | 5.7 | 3.5 | 3.8 |
| 1,3,5-TRIMETHYLBENZENE | 9.8 | 4.1 | * | 6.3 | 1.3 | 4.2 | 3.0 | 3.8 |
| o-ETHYLTOLUENE | 11.0 | 5.5 | 2.1 | 6.7 | 0.8 | 4.5 | 4.4 | 3.7 |
| 1,2,4-TRIMETHYLBENZENE | 27.6 | 13.0 | 14.7 | 19.1 | 9.4 | 12.7 | 9.9 | 11.1 |
| n-DECANE | 7.1 | * | * | 7.1 | 0.7 | 6.7 | * | 4.7 |
| 1,4-DIETHYLBENZENE | 6.4 | 5.1 | * | 5.5 | 0.4 | 3.9 | 2.3 | 3.9 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 11.0 | 4.9 | 2.2 | 4.4 | * | 3.0 | 1.5 | 2.6 |
| SUM OTHER AROMATICS | 119.3 | 442.5 | 18.8 | 168.1 | 14.6 | 73.2 | 259.5 | 39.9 |
| SUMMARY |  |  |  |  |  |  |  |  |
| ACETYLENE | 22.1 | 14.4 | 10.1 | 37.9 | 4.2 | 26.5 | 15.9 | 18.3 |
| SUM UNKNOWNS | 9.9 | 4.8 | 6.1 | 8.6 | * | 2.6 | 48.0 | 0.1 |
| SUM PARAFFINS | 764.1 | 350.7 | 210.7 | 669.9 | 75.5 | 417.1 | 296.5 | 282.6 |
| SUM OLEFINS | 284.8 | 149.5 | 57.1 | 212.7 | 13.0 | 170.8 | 109.0 | 106.1 |
| SUM AROMATICS | 431.7 | 627.2 | 112.6 | 403.9 | 66.9 | 228.3 | 375.4 | 174.9 |
| SUM HYDROCARBONS | 1512.8 | 1146.8 | 396.8 | 1333.3 | 159.7 | 845.5 | 845.1 | 582.1 |

TABLE A-43b. Hydrocarbon concentration data for WASHINGTON DC

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1482<br>85/07/05 | 1511<br>85/07/09 | 1572<br>86/07/03 | 1605<br>84/08/03 | 1608<br>85/07/17 | 1617<br>86/07/08 | 1668<br>86/07/11 | 1708<br>84/08/09 |
| PARAFFINS | | | | | | | | |
| ETHANE | 13.3 | 10.8 | 10.6 | 10.8 | 10.8 | 24.3 | 19.6 | 17.2 |
| PROPANE | 8.2 | 6.3 | 7.8 | 8.1 | 10.2 | 18.5 | 13.7 | 12.3 |
| ISOBUTANE | 8.2 | 4.9 | 4.2 | 10.1 | 7.2 | 7.5 | 12.2 | 13.3 |
| n-BUTANE | 37.1 | 21.9 | 14.0 | 51.2 | 29.8 | 25.9 | 45.7 | 61.2 |
| ISOPENTANE | 35.3 | 22.0 | 5.1 | 52.4 | 30.2 | 24.1 | 45.7 | 61.8 |
| n-PENTANE | 15.6 | 10.5 | 2.7 | 22.7 | 13.5 | 9.5 | 16.0 | 27.2 |
| 2,2-DIMETHYLBUTANE | 0.8 | 0.6 | 0.1 | 1.5 | 1.1 | 0.1 | 0.6 | 1.9 |
| CYCLOPENTANE | 1.2 | 0.9 | * | 2.2 | 1.2 | 0.5 | 2.2 | 2.6 |
| 2,3-DIMETHYLBUTANE | 3.0 | 2.0 | 1.0 | 5.1 | 3.4 | 1.7 | 3.8 | 5.9 |
| 2-METHYLPENTANE | 10.7 | 6.9 | 3.6 | 17.3 | 12.9 | 5.7 | 11.6 | 20.7 |
| 3-METHYLPENTANE | 7.2 | 5.0 | 3.4 | 12.0 | 9.4 | 4.7 | 9.0 | 14.0 |
| n-HEXANE,2-ETHYL-1-BUTENE | 6.5 | 4.3 | 1.9 | 10.6 | 10.1 | 3.6 | 6.8 | 11.9 |
| METHYLCYCLOPENTANE | 4.0 | 2.7 | 1.4 | 7.0 | 4.6 | 2.3 | 5.0 | 7.8 |
| 2,4-DIMETHYLPENTANE | 1.7 | 1.2 | 0.6 | 3.3 | 1.9 | 0.8 | 1.9 | 3.8 |
| CYCLOHEXANE | 0.8 | 0.4 | 0.2 | 1.2 | 0.7 | 0.6 | 1.0 | 1.5 |
| 2-METHYLHEXANE | 6.5 | 4.7 | 2.0 | 6.1 | 5.8 | 3.0 | 7.8 | 6.8 |
| 2,3-DIMETHYLPENTANE | * | * | * | 4.6 | 2.4 | * | * | 5.2 |
| 3-METHYLHEXANE | 3.7 | 2.7 | 1.2 | 8.8 | 4.5 | 2.2 | 4.4 | 8.3 |
| 2,2,4-TRIMETHYLPENTANE | 8.0 | 4.8 | 2.4 | 12.6 | 6.9 | 3.6 | 7.6 | 14.8 |
| n-HEPTANE | 4.0 | 1.9 | 1.3 | 4.6 | 3.0 | 1.9 | 4.3 | 5.0 |
| METHYLCYCLOHEXANE | 1.8 | 1.2 | 0.7 | 2.3 | 1.9 | 1.0 | 2.4 | 3.2 |
| 2,5-DIMETHYLHEXANE | 1.3 | 1.2 | * | 2.5 | 1.6 | 0.6 | 1.7 | 2.8 |
| 2,4-DIMETHYLHEXANE | 1.2 | 0.9 | 0.3 | 3.0 | 1.4 | 0.6 | 1.6 | 3.1 |
| 2,3,4-TRIMETHYLPENTANE | 3.3 | 2.7 | 1.2 | 4.5 | 2.5 | 1.5 | 3.5 | 5.4 |
| 2-METHYLHEPTANE | 1.4 | 0.7 | 0.3 | 3.1 | 1.6 | 0.7 | 2.8 | 3.0 |
| 3-METHYLHEPTANE | 1.5 | 1.0 | 0.4 | 2.7 | 1.7 | 0.6 | 2.1 | 3.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.9 | 0.8 | 0.5 | 1.7 | 0.9 | 2.0 | 1.5 | 1.9 |
| n-OCTANE | 1.7 | 0.8 | 0.7 | 1.8 | 1.3 | 0.7 | 3.2 | 2.2 |
| 2,4-DIMETHYLHEPTANE | * | * | 1.5 | * | * | 0.5 | 1.1 | * |
| 4-METHYLOCTANE | 1.3 | 1.0 | 0.7 | 1.5 | 1.5 | 0.9 | 2.0 | 3.1 |
| 3-METHYLOCTANE | 1.4 | 1.2 | 0.6 | 1.0 | 1.2 | 1.1 | 1.5 | 1.4 |
| n-NONANE | 1.5 | 1.4 | 0.9 | 2.7 | 1.3 | 0.7 | 2.4 | 2.4 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 3.0 | 3.1 | 2.2 | 2.9 | 2.8 | 1.5 | 7.2 | 3.2 |
| SUM OTHER PARAFFINS | 24.7 | 24.7 | 4.9 | 52.9 | 19.7 | 19.0 | 30.8 | 42.7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 17.2 | 12.3 | 5.6 | 32.4 | 13.6 | 6.8 | 16.9 | 34.6 |
| PROPENE | 6.1 | 4.2 | 1.4 | 11.6 | 4.2 | 2.5 | 4.9 | 13.1 |
| 2-METHYLPROPYLENE,BUTENE-1 | 5.6 | 4.4 | 1.5 | 9.6 | 4.0 | 3.3 | 5.7 | 10.3 |
| 1,3-BUTADIENE | 1.2 | 0.8 | * | 3.0 | 0.7 | 0.4 | 0.4 | 2.8 |
| t-2-BUTENE | 2.0 | 1.4 | 0.3 | 3.8 | 1.8 | 1.1 | 2.3 | 3.7 |
| c-2-BUTENE | 1.4 | 1.0 | 0.3 | 2.5 | 1.3 | 0.7 | 1.7 | 2.6 |
| 1-PENTENE | 1.2 | 0.9 | * | 3.0 | 1.1 | 0.8 | 1.6 | 3.4 |
| 2-METHYL-1-BUTENE | 2.1 | 1.3 | * | 3.5 | 3.3 | 1.7 | 2.4 | 3.6 |
| ISOPRENE | 3.7 | 1.2 | * | 3.7 | 1.5 | 1.8 | 3.1 | 2.9 |
| t-2-PENTENE | 2.0 | 1.7 | 0.3 | 4.1 | 2.2 | 1.1 | 2.4 | 4.0 |
| c-2-PENTENE | 2.4 | 2.2 | 0.8 | 4.9 | 3.0 | 1.6 | 2.6 | 5.3 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.4 | 0.6 | * | 0.6 | 0.4 | * | * | 2.4 |
| 2-METHYL-2-PENTENE | 0.6 | 0.6 | 0.1 | 1.5 | 0.8 | * | 1.0 | 1.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 1.1 | 0.9 | 0.5 | 1.9 | 1.4 | 0.7 | 1.3 | 1.5 |
| a-PINENE | 2.2 | 3.3 | * | 0.8 | 1.4 | 0.3 | 2.8 | 0.8 |
| SUM OTHER OLEFINS | 30.5 | 30.8 | 1.1 | 44.1 | 15.8 | 6.3 | 13.9 | 40.1 |
| AROMATICS | | | | | | | | |
| BENZENE | 10.3 | 7.3 | 4.0 | 15.5 | 8.7 | 5.4 | 11.6 | 18.8 |
| TOLUENE | 31.9 | 22.4 | 14.6 | 46.1 | 66.3 | 17.3 | 43.0 | 52.6 |
| ETHYLBENZENE | 4.4 | 3.9 | 2.0 | 7.7 | 16.5 | 3.3 | 7.0 | 8.9 |
| m&p-XYLENE | 15.0 | 14.0 | 6.7 | 23.9 | 63.6 | 9.9 | 22.5 | 27.8 |
| o-XYLENE | 5.5 | 4.8 | 3.1 | 8.6 | 21.5 | 5.4 | 9.4 | 9.8 |
| n-PROPYLBENZENE | 1.0 | 0.8 | 0.4 | 2.5 | 1.0 | 0.4 | 3.7 | 2.6 |
| m-ETHYLTOLUENE | 4.7 | 3.6 | 1.7 | 8.0 | 4.0 | 1.9 | 6.3 | 8.7 |
| p-ETHYLTOLUENE | 2.6 | 2.1 | 0.9 | 4.4 | 2.1 | 1.1 | 3.6 | 4.7 |
| 1,3,5-TRIMETHYLBENZENE | 3.1 | 2.7 | 1.3 | 4.2 | 2.9 | 1.6 | 4.3 | 4.7 |
| o-ETHYLTOLUENE | 2.5 | 2.0 | 1.2 | 4.4 | 2.1 | 1.3 | 3.5 | 4.5 |
| 1,2,4-TRIMETHYLBENZENE | 8.0 | 7.0 | 6.0 | 13.1 | 7.0 | 9.0 | 15.7 | 13.7 |
| n-DECANE | 2.3 | * | 0.6 | 5.2 | 1.6 | 0.9 | 3.4 | 5.5 |
| 1,4-DIETHYLBENZENE | 2.6 | 2.2 | 0.5 | 4.7 | 1.8 | 0.9 | 3.1 | 4.6 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 3.2 | 2.2 | 1.0 | 2.8 | 2.9 | 1.1 | 4.5 | 2.9 |
| SUM OTHER AROMATICS | 25.4 | 42.3 | 13.0 | 45.2 | 28.9 | 8.7 | 31.7 | 46.1 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 16.0 | 12.1 | 4.7 | 22.4 | 11.9 | 4.8 | 11.6 | 26.8 |
| SUM UNKNOWNS | 7.0 | 7.5 | 3.5 | 0.7 | 3.6 | 1.7 | 3.6 | 0.4 |
| SUM PARAFFINS | 222.1 | 156.5 | 79.8 | 336.2 | 210.5 | 173.3 | 284.1 | 382.8 |
| SUM OLEFINS | 80.4 | 68.5 | 12.2 | 131.6 | 57.3 | 29.6 | 63.5 | 133.3 |
| SUM AROMATICS | 123.1 | 117.7 | 57.5 | 196.7 | 231.4 | 68.7 | 174.0 | 216.3 |
| SUM HYDROCARBONS | 448.7 | 362.5 | 157.8 | 687.8 | 514.8 | 278.3 | 537.5 | 759.7 |

TABLE A-43c. Hydrocarbon concentration data for WASHINGTON DC

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1717 86/07/14 | 1756 84/08/13 | 1770 85/07/25 | 1882 85/07/30 | 1886 86/07/23 | 1994 85/08/07 | 2013 86/07/30 | 2105 85/08/15 |
| PARAFFINS | | | | | | | | |
| ETHANE | 12.6 | 10.8 | 12.1 | 13.3 | 13.3 | 9.6 | 9.6 | 15.2 |
| PROPANE | 8.0 | 7.3 | 9.9 | 11.1 | 10.1 | 5.4 | 7.1 | 8.0 |
| ISOBUTANE | 4.8 | 11.3 | 13.9 | 13.3 | 9.8 | 8.0 | 4.4 | 10.0 |
| n-BUTANE | 19.0 | 52.4 | 54.5 | 49.8 | 26.9 | 31.3 | 13.1 | 39.6 |
| ISOPENTANE | 20.2 | 54.8 | 56.3 | 53.8 | 28.1 | 35.5 | 8.8 | 47.2 |
| n-PENTANE | 6.1 | 22.7 | 21.2 | 21.6 | 7.5 | 12.9 | 1.9 | 17.5 |
| 2,2-DIMETHYLBUTANE | * | 1.5 | 1.6 | 1.6 | 0.4 | 1.0 | * | 1.4 |
| CYCLOPENTANE | 0.6 | 2.1 | 1.9 | 1.9 | 0.9 | 1.5 | * | 1.6 |
| 2,3-DIMETHYLBUTANE | 1.7 | 5.1 | 5.4 | 5.1 | 2.3 | 3.3 | 0.9 | 4.2 |
| 2-METHYLPENTANE | 5.3 | 17.2 | 18.2 | 16.8 | 6.6 | 10.7 | 3.0 | 14.6 |
| 3-METHYLPENTANE | 4.2 | 10.7 | 10.4 | 10.0 | 6.2 | 6.6 | 3.8 | 10.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 3.0 | 9.4 | 9.7 | 9.0 | 3.8 | 5.9 | 2.0 | 7.8 |
| METHYLCYCLOPENTANE | 2.1 | 6.4 | 6.7 | 6.4 | 2.9 | 4.2 | 1.1 | 5.5 |
| 2,4-DIMETHYLPENTANE | 1.0 | 4.7 | 3.3 | 3.1 | 1.2 | 2.0 | 0.5 | 2.5 |
| CYCLOHEXANE | 0.3 | 1.6 | 1.1 | 1.1 | 0.4 | 0.7 | 0.2 | 0.8 |
| 2-METHYLHEXANE | 3.1 | 6.4 | 7.4 | 7.1 | 3.4 | 4.2 | 1.5 | 9.3 |
| 2,3-DIMETHYLPENTANE | * | 4.4 | 4.5 | 4.5 | * | 2.8 | * | * |
| 3-METHYLHEXANE | 1.9 | 9.4 | 6.1 | 6.1 | 2.4 | 4.1 | 1.2 | 5.2 |
| 2,2,4-TRIMETHYLPENTANE | 4.0 | 11.8 | 14.3 | 14.3 | 5.4 | 8.6 | 2.3 | 11.1 |
| n-HEPTANE | 1.0 | 5.4 | 4.5 | 4.7 | 2.1 | 2.4 | 1.0 | 3.0 |
| METHYLCYCLOHEXANE | 1.0 | 2.7 | 2.6 | 2.7 | 1.2 | 1.8 | 0.6 | 2.1 |
| 2,5-DIMETHYLHEXANE | * | 2.2 | 2.5 | 2.6 | 0.2 | 1.9 | * | 2.1 |
| 2,4-DIMETHYLHEXANE | 0.6 | 2.5 | 2.8 | 2.7 | 0.9 | 1.9 | 0.4 | 2.2 |
| 2,3,4-TRIMETHYLPENTANE | 1.6 | 4.2 | 6.0 | 5.1 | 2.1 | 3.8 | 1.1 | 4.2 |
| 2-METHYLHEPTANE | 0.7 | 3.1 | 2.7 | 2.7 | 1.2 | 1.8 | 0.5 | 2.4 |
| 3-METHYLHEPTANE | 0.7 | * | 2.9 | 2.8 | 0.9 | 2.0 | 0.4 | 2.5 |
| 2,2,5-TRIMETHYLHEXANE | 0.8 | 1.7 | 2.0 | 2.0 | 0.8 | 1.3 | 0.5 | 1.5 |
| n-OCTANE | 0.8 | 1.8 | 2.3 | 1.7 | 1.6 | * | 0.7 | 1.7 |
| 2,4-DIMETHYLHEPTANE | 0.5 | * | * | * | 1.1 | 0.3 | 0.6 | 0.4 |
| 4-METHYLOCTANE | 0.4 | 1.5 | 2.1 | 2.0 | 1.2 | 1.3 | 0.3 | 1.8 |
| 3-METHYLOCTANE | 0.6 | 1.1 | 1.7 | 1.6 | 0.9 | 1.1 | 0.7 | 1.3 |
| n-NONANE | 0.7 | 2.0 | 5.2 | 1.8 | 1.4 | 1.3 | 1.1 | 1.5 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.4 | 3.2 | 4.4 | 2.7 | 3.3 | 1.7 | 2.6 | 2.6 |
| SUM OTHER PARAFFINS | 11.5 | 40.5 | 30.2 | 42.8 | 13.4 | 20.6 | 6.8 | 22.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 7.9 | 24.2 | 27.4 | 42.0 | 14.7 | 21.8 | 5.2 | 25.1 |
| PROPENE | 2.3 | 8.0 | 10.2 | 11.0 | 2.7 | 8.7 | 1.1 | 10.0 |
| 2-METHYLPROPYLENE, BUTENE-1 | 2.3 | 8.1 | 8.1 | 9.2 | 2.4 | 6.2 | 1.4 | 7.7 |
| 1,3-BUTADIENE | 0.6 | 1.2 | 1.5 | 1.4 | * | 1.6 | * | 2.1 |
| t-2-BUTENE | * | 3.3 | 3.6 | 3.3 | 0.5 | 2.2 | * | 2.9 |
| c-2-BUTENE | 0.5 | 2.9 | 2.7 | 2.3 | 0.5 | 1.6 | * | 2.0 |
| 1-PENTENE | 0.5 | 2.1 | 8.0 | 1.9 | 0.4 | 1.3 | * | 1.6 |
| 2-METHYL-1-BUTENE | 0.8 | 4.0 | 3.5 | 3.0 | 0.6 | 2.1 | 0.1 | 2.5 |
| ISOPRENE | * | 2.2 | 1.9 | 4.8 | * | 3.6 | 1.5 | 4.8 |
| t-2-PENTENE | 0.8 | 4.6 | 4.2 | 3.5 | 0.3 | 2.4 | * | 3.0 |
| c-2-PENTENE | 0.4 | 6.5 | 6.0 | 5.0 | * | 3.4 | * | 4.0 |
| 2-METHYL-1-PENTENE, 1-HEXENE | 0.2 | 0.2 | 0.8 | 0.7 | 0.0 | 0.6 | * | 1.9 |
| 2-METHYL-2-PENTENE | 0.4 | 1.5 | 1.6 | 1.4 | * | 1.0 | 0.0 | 1.3 |
| 2,2,3-TRIMETHYL-1-BUTENE | 0.8 | 2.5 | 1.8 | 1.4 | 1.2 | 1.2 | 0.5 | 1.1 |
| a-PINENE | * | 1.1 | 1.8 | 1.3 | 0.5 | 1.1 | * | 0.1 |
| SUM OTHER OLEFINS | 4.1 | 53.0 | 29.3 | 24.3 | 5.6 | 15.7 | 2.3 | 15.9 |
| AROMATICS | | | | | | | | |
| BENZENE | 5.6 | 13.9 | 17.4 | 18.0 | 7.7 | 12.3 | 4.9 | 15.9 |
| TOLUENE | 21.5 | 44.5 | 57.8 | 51.8 | 29.3 | 37.0 | 13.6 | 49.2 |
| ETHYLBENZENE | 2.7 | 6.9 | 7.9 | 12.8 | 3.8 | 6.0 | 1.8 | 12.7 |
| m&p-XYLENE | 8.6 | 21.8 | 25.9 | 44.6 | 11.5 | 20.3 | 5.3 | 44.6 |
| o-XYLENE | 4.1 | 7.9 | 9.9 | 16.8 | 5.0 | 7.6 | 2.9 | 15.3 |
| n-PROPYLBENZENE | 0.5 | 2.2 | 2.3 | 2.0 | 0.8 | 1.3 | 0.4 | 1.6 |
| m-ETHYLTOLUENE | 2.3 | 7.4 | 8.2 | 7.8 | 3.2 | 5.4 | 1.6 | 5.6 |
| p-ETHYLTOLUENE | 1.2 | 4.1 | 4.6 | 3.9 | 1.8 | 2.7 | 0.9 | 1.7 |
| 1,3,5-TRIMETHYLBENZENE | 1.5 | 4.2 | 4.9 | 4.2 | 2.3 | 2.3 | 1.5 | 3.1 |
| o-ETHYLTOLUENE | 1.3 | 3.9 | 4.1 | 3.7 | 1.7 | 2.6 | 1.1 | 3.2 |
| 1,2,4-TRIMETHYLBENZENE | 8.7 | 12.0 | 14.5 | 13.2 | 10.7 | 10.0 | 7.5 | 6.0 |
| n-DECANE | 0.9 | 5.4 | 4.0 | 3.4 | 1.2 | 2.4 | 0.4 | 2.9 |
| 1,4-DIETHYLBENZENE | 0.9 | 3.9 | 4.7 | 3.2 | 1.9 | 2.2 | 0.6 | 2.8 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 1.0 | 3.7 | 3.6 | 2.3 | 2.1 | 1.2 | 1.5 | 1.5 |
| SUM OTHER AROMATICS | 13.5 | 44.2 | 44.2 | 36.6 | 33.6 | 21.4 | 13.8 | 22.6 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 5.3 | 20.2 | 27.3 | 16.7 | 4.9 | 20.4 | 2.6 | 23.6 |
| SUM UNKNOWNS | 2.2 | 0.9 | 2.0 | 5.5 | 2.2 | 2.6 | 2.7 | 3.8 |
| SUM PARAFFINS | 121.6 | 323.3 | 332.0 | 329.2 | 165.1 | 203.0 | 80.0 | 265.1 |
| SUM OLEFINS | 22.1 | 126.2 | 113.0 | 117.2 | 29.9 | 75.2 | 12.4 | 86.6 |
| SUM AROMATICS | 75.0 | 186.8 | 214.7 | 225.1 | 117.3 | 135.3 | 58.3 | 189.4 |
| SUM HYDROCARBONS | 226.4 | 657.6 | 689.3 | 693.9 | 319.4 | 436.7 | 156.2 | 568.6 |

TABLE A-43d. Hydrocarbon concentration data for WASHINGTON DC

| Compound | ID Number and Sample Date<br>2125<br>86/08/05 | 2225<br>85/08/23 | 2284<br>84/09/14 | 2285<br>86/08/12 | 2345<br>84/09/19 | 2364CS0<br>85/08/29 | 2464<br>84/09/26 | 2499<br>86/08/25 |
|---|---|---|---|---|---|---|---|---|
| PARAFFINS | | | | | | | | |
| ETHANE | 62.7 | 27.3 | 8.3 | 12.0 | 27.3 | 33.5 | 15.3 | 10.9 |
| PROPANE | 34.3 | 27.4 | 7.2 | 7.0 | 20.2 | 20.8 | 12.8 | 6.1 |
| ISOBUTANE | 31.1 | 14.1 | 8.3 | 5.0 | 19.3 | 13.2 | 14.0 | 4.3 |
| n-BUTANE | 106.6 | 55.3 | 39.3 | 14.8 | 88.8 | 50.1 | 64.3 | 15.9 |
| ISOPENTANE | 108.1 | 70.1 | 42.3 | 15.2 | 99.2 | 56.4 | 69.7 | 20.6 |
| n-PENTANE | 40.3 | 27.0 | 16.9 | 3.8 | 40.8 | 23.6 | 37.3 | 6.3 |
| 2,2-DIMETHYLBUTANE | 3.2 | 2.3 | 1.2 | 0.2 | 3.5 | 1.9 | 2.2 | 0.2 |
| CYCLOPENTANE | 4.3 | 2.9 | 1.5 | * | 4.0 | 2.1 | 2.5 | 0.7 |
| 2,3-DIMETHYLBUTANE | 8.8 | 7.0 | 4.0 | 1.3 | 10.2 | 5.2 | 8.4 | 1.8 |
| 2-METHYLPENTANE | 29.4 | 24.5 | 14.5 | 3.9 | 35.1 | 18.3 | 27.7 | 5.5 |
| 3-METHYLPENTANE | 17.8 | 14.8 | 9.1 | 3.5 | 23.4 | * | 24.8 | 7.6 |
| n-HEXANE,2-ETHYL-1-BUTENE | 15.8 | 13.7 | 8.2 | 2.2 | 22.3 | 10.4 | 15.6 | 3.1 |
| METHYLCYCLOPENTANE | 11.2 | 9.6 | 5.3 | 1.5 | 15.1 | 6.8 | 10.4 | 2.2 |
| 2,4-DIMETHYLPENTANE | 4.4 | 4.3 | 2.5 | 0.6 | 7.1 | 3.0 | 4.8 | 1.0 |
| CYCLOHEXANE | 2.1 | 1.5 | 1.0 | 0.2 | 2.9 | 1.3 | 2.2 | 0.4 |
| 2-METHYLHEXANE | 10.4 | 10.1 | 4.4 | 1.5 | 13.1 | 8.0 | 7.8 | 3.4 |
| 2,3-DIMETHYLPENTANE | * | 5.7 | 3.3 | * | 10.1 | 4.0 | 5.6 | * |
| 3-METHYLHEXANE | 11.0 | 8.7 | 5.4 | 1.2 | 24.6 | 6.4 | 7.9 | 2.5 |
| 2,2,4-TRIMETHYLPENTANE | 20.7 | 17.7 | 9.4 | 2.7 | 25.4 | 12.7 | 15.3 | 4.7 |
| n-HEPTANE | 8.2 | 5.9 | 4.1 | 0.9 | 12.1 | 5.4 | 6.5 | 2.2 |
| METHYLCYCLOHEXANE | 5.4 | 3.6 | 2.2 | 0.7 | 9.1 | 3.0 | 3.6 | 1.2 |
| 2,5-DIMETHYLHEXANE | 3.6 | 3.2 | 1.9 | * | 5.3 | 2.4 | 2.9 | 0.4 |
| 2,4-DIMETHYLHEXANE | 3.8 | 3.5 | 2.7 | 0.4 | 6.3 | 2.5 | 3.2 | 0.8 |
| 2,3,4-TRIMETHYLPENTANE | 6.9 | 6.8 | 3.4 | 1.0 | 9.6 | 5.1 | 5.5 | 2.3 |
| 2-METHYLHEPTANE | 3.8 | 3.5 | 2.2 | 0.5 | 4.5 | 2.9 | 3.2 | 1.0 |
| 3-METHYLHEPTANE | 4.2 | 3.9 | 2.3 | 0.5 | 5.7 | 3.2 | 3.4 | 0.8 |
| 2,2,5-TRIMETHYLHEXANE | 3.0 | 2.5 | 1.3 | 0.1 | 3.7 | 1.8 | 2.1 | 3.0 |
| n-OCTANE | 3.6 | 2.8 | 1.8 | 1.8 | 4.4 | 4.5 | 2.6 | 1.1 |
| 2,4-DIMETHYLHEPTANE | 0.6 | * | * | 0.4 | 0.3 | 2.2 | 0.3 | 2.1 |
| 4-METHYLOCTANE | 3.8 | 2.2 | 1.2 | 0.3 | 6.2 | 1.9 | 1.9 | 1.3 |
| 3-METHYLOCTANE | 2.5 | 1.7 | 0.8 | 0.5 | 2.5 | 1.4 | 1.3 | 1.2 |
| n-NONANE | 5.4 | 2.9 | 1.5 | 0.7 | 4.5 | 2.2 | 2.4 | 1.0 |
| 4-METHYLNONANE | 2.1 | * | * | * | * | * | * | * |
| n-DECANE | 17.7 | 3.9 | 2.0 | 2.2 | 7.6 | 3.5 | 4.2 | 3.3 |
| SUM OTHER PARAFFINS | 72.0 | 35.8 | 26.2 | 6.3 | 111.6 | 31.8 | 39.7 | 17.0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 33.3 | 42.4 | 28.3 | 5.4 | 70.0 | 34.6 | 38.7 | 10.9 |
| PROPENE | 10.1 | 13.5 | 9.7 | 1.5 | 24.2 | 11.5 | 13.9 | 3.2 |
| 2-METHYLPROPYLENE, BUTENE-1 | 10.3 | 10.9 | 7.2 | 1.5 | 16.8 | 8.7 | 10.6 | 3.1 |
| 1,3-BUTADIENE | 0.9 | 2.3 | 2.1 | * | 5.6 | 2.4 | 2.6 | * |
| t-2-BUTENE | 5.2 | 4.4 | 2.8 | 0.4 | 6.0 | 3.3 | 3.2 | 0.6 |
| c-2-BUTENE | 4.0 | 3.1 | 1.9 | 0.3 | 4.4 | 2.1 | 2.9 | 0.5 |
| 1-PENTENE | 4.0 | 2.7 | 2.0 | 0.2 | 3.8 | 1.8 | 2.2 | 0.0 |
| 2-METHYL-1-BUTENE | 4.7 | 4.2 | 2.7 | 0.3 | 6.1 | 2.7 | 4.4 | 1.4 |
| ISOPRENE | 2.0 | 4.9 | 1.6 | * | 4.2 | 2.0 | 2.6 | 1.1 |
| t-2-PENTENE | 6.3 | 5.1 | 3.1 | 0.1 | 10.4 | 3.1 | 4.8 | * |
| c-2-PENTENE | 8.8 | 7.6 | 4.2 | * | 8.4 | * | 6.4 | * |
| 2-METHYL-1-PENTENE, 1-HEXENE | 3.1 | 1.6 | 0.6 | 0.1 | * | 2.6 | 1.2 | 0.3 |
| 2-METHYL-2-PENTENE | 2.3 | 2.5 | 1.1 | * | 2.9 | 1.4 | 1.8 | 0.4 |
| 2,2,3-TRIMETHYL-1-BUTENE | 3.0 | 1.9 | 1.1 | 0.5 | 3.0 | 1.4 | 4.7 | 0.8 |
| a-PINENE | 2.6 | 1.0 | 0.8 | * | 2.8 | 2.1 | 1.2 | * |
| SUM OTHER OLEFINS | 28.7 | 27.6 | 31.6 | 3.1 | 104.5 | 35.2 | 44.3 | 9.3 |
| AROMATICS | | | | | | | | |
| BENZENE | 25.3 | 23.4 | 14.0 | 3.8 | 33.5 | 18.0 | 20.1 | 6.1 |
| TOLUENE | 97.1 | 71.2 | 36.4 | 14.8 | 93.9 | 53.6 | 63.0 | 24.9 |
| ETHYLBENZENE | 20.7 | 11.7 | 6.2 | 3.3 | 16.0 | 14.5 | 10.0 | 3.5 |
| m&p-XYLENE | 64.8 | 38.7 | 20.7 | 10.2 | 53.2 | 50.6 | 32.6 | 11.1 |
| o-XYLENE | 23.2 | 14.3 | 7.4 | 3.8 | 19.5 | 18.7 | 11.2 | 7.8 |
| n-PROPYLBENZENE | 3.5 | 3.0 | 1.7 | 0.7 | 5.5 | 2.0 | 2.8 | 1.7 |
| m-ETHYLTOLUENE | 11.9 | 8.9 | 6.2 | 1.9 | 17.4 | 8.0 | 9.7 | 3.3 |
| p-ETHYLTOLUENE | 6.9 | 2.8 | 3.1 | 1.1 | 8.7 | 4.0 | 4.9 | 1.8 |
| 1,3,5-TRIMETHYLBENZENE | 6.4 | 5.4 | 3.3 | 1.3 | 8.9 | 4.7 | 5.4 | 2.1 |
| o-ETHYLTOLUENE | 6.6 | 5.0 | 2.9 | 1.1 | 8.1 | 3.6 | 4.9 | 1.6 |
| 1,2,4-TRIMETHYLBENZENE | 26.4 | 21.6 | 9.9 | 6.5 | 24.6 | 13.7 | 15.8 | 11.4 |
| n-DECANE | 7.8 | 4.9 | 3.9 | 0.6 | 10.9 | 2.7 | 5.5 | 1.4 |
| 1,4-DIETHYLBENZENE | 6.0 | 4.4 | 3.1 | 0.8 | 8.1 | 3.4 | 4.8 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 12.2 | * | 1.2 | 1.2 | 3.8 | 2.1 | 3.8 | 2.3 |
| SUM OTHER AROMATICS | 72.7 | 43.6 | 30.1 | 14.1 | 108.5 | 30.4 | 59.4 | 8.3 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 28.4 | 32.8 | 21.2 | 4.4 | 53.3 | 22.5 | 31.1 | 6.8 |
| SUM UNKNOWNS | 3.9 | 3.7 | 1.1 | 1.8 | 8.4 | 7.2 | 1.0 | 2.2 |
| SUM PARAFFINS | 670.7 | 427.8 | 247.1 | 94.1 | 687.6 | 352.7 | 433.0 | 137.5 |
| SUM OLEFINS | 130.0 | 136.4 | 101.5 | 13.9 | 273.5 | 115.5 | 146.3 | 32.1 |
| SUM AROMATICS | 392.2 | 259.4 | 150.7 | 65.7 | 421.3 | 230.8 | 254.4 | 89.3 |
| SUM HYDROCARBONS | 1225.3 | 860.3 | 521.8 | 180.2 | 1444.4 | 728.8 | 865.9 | 268.2 |

TABLE A-44a. Hydrocarbon concentration data for WEST PALM BEACH, FL

| Compound | ID Number and Sample Date | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1188<br>84/07/10 | 1360<br>84/07/20 | 1564<br>84/08/02 | 1619<br>84/08/06 | 1705<br>84/08/10 | 1742<br>84/08/14 | 2199<br>84/09/11 | 2388<br>84/09/24 |
| PARAFFINS | | | | | | | | |
| ETHANE | 3.1 | 3.5 | 2.9 | 3.7 | 4.4 | 8.9 | 4.6 | 4.7 |
| PROPANE | 7.8 | 24.5 | 4.1 | 11.4 | 19.9 | 17.4 | 10.5 | 3.0 |
| ISOBUTANE | 4.5 | 4.6 | 2.2 | 5.7 | 8.2 | 9.7 | 3.8 | 5.5 |
| n-BUTANE | 12.2 | 12.8 | 6.9 | 18.2 | 30.9 | 31.1 | 12.8 | 8.9 |
| ISOPENTANE | 17.0 | 16.9 | 10.6 | 25.8 | 44.8 | 46.1 | 19.1 | 14.8 |
| n-PENTANE | 7.9 | 7.2 | 4.4 | 10.8 | 21.1 | 20.2 | 8.8 | 12.9 |
| 2,2-DIMETHYLBUTANE | 0.8 | 0.7 | 0.4 | 1.0 | 2.0 | 2.0 | 0.9 | 6.3 |
| CYCLOPENTANE | 0.7 | 0.6 | 0.3 | 1.0 | 1.7 | 1.9 | 0.8 | 0.9 |
| 2,3-DIMETHYLBUTANE | 1.8 | 1.4 | 0.9 | 2.1 | 8.1 | 4.3 | 1.9 | 73.4 |
| 2-METHYLPENTANE | 7.4 | 5.4 | 3.9 | 9.5 | 22.8 | 18.1 | 9.7 | 185.8 |
| 3-METHYLPENTANE | 6.2 | 5.8 | 2.1 | 5.4 | 23.7 | 11.2 | 4.5 | 278.8 |
| n-HEXANE,2-ETHYL-1-BUTENE | 4.6 | 3.8 | 2.4 | 5.8 | 13.3 | 11.2 | 5.1 | 105.0 |
| METHYLCYCLOPENTANE | 2.4 | 2.0 | 1.3 | 3.1 | 8.9 | 6.2 | 2.8 | 60.5 |
| 2,4-DIMETHYLPENTANE | 1.2 | 1.3 | 0.7 | 1.5 | 4.0 | 2.9 | 1.0 | 19.5 |
| CYCLOHEXANE | 0.4 | 0.1 | 0.2 | 0.6 | 1.5 | 1.2 | 0.5 | 5.2 |
| 2-METHYLHEXANE | 2.3 | * | 2.2 | 2.9 | 4.9 | 6.6 | 2.7 | 7.3 |
| 2,3-DIMETHYLPENTANE | * | 4.3 | * | 1.7 | 3.8 | 3.8 | 1.4 | 4.4 |
| 3-METHYLHEXANE | * | 19.7 | 5.7 | 2.5 | 5.5 | 6.8 | 4.7 | 7.5 |
| 2,2,4-TRIMETHYLPENTANE | 2.9 | 3.4 | 1.6 | 4.0 | 9.7 | 8.8 | 4.1 | 2.0 |
| n-HEPTANE | 1.3 | 1.8 | 0.9 | 2.1 | 3.7 | 5.0 | 2.1 | 5.4 |
| METHYLCYCLOHEXANE | 0.8 | 1.3 | 0.5 | 1.1 | 2.2 | 2.3 | 1.1 | 3.9 |
| 2,5-DIMETHYLHEXANE | 0.8 | * | 0.5 | 0.8 | 1.6 | 1.7 | 0.9 | 1.4 |
| 2,4-DIMETHYLHEXANE | 1.0 | 3.6 | 0.9 | 1.2 | 2.1 | 2.1 | 1.1 | 1.1 |
| 2,3,4-TRIMETHYLPENTANE | 0.8 | 1.0 | 0.5 | 1.5 | 3.0 | 2.8 | 1.3 | 0.6 |
| 2-METHYLHEPTANE | 0.9 | 0.9 | 0.5 | 0.8 | 1.9 | 2.4 | 1.6 | 1.7 |
| 3-METHYLHEPTANE | 1.1 | 0.9 | 0.6 | 1.2 | 2.1 | 2.8 | 1.3 | 1.6 |
| 2,2,5-TRIMETHYLHEXANE | 0.2 | 0.2 | 0.1 | 0.4 | 0.7 | 0.8 | 0.3 | 0.3 |
| n-OCTANE | 0.6 | 0.9 | 0.3 | 0.6 | 1.6 | 2.1 | 0.9 | 1.6 |
| 2,4-DIMETHYLHEPTANE | * | * | * | * | * | * | * | * |
| 4-METHYLOCTANE | * | * | 0.1 | 0.7 | 1.3 | 1.5 | 0.8 | * |
| 3-METHYLOCTANE | 0.4 | 0.4 | 0.1 | 0.5 | 0.9 | 1.0 | 0.6 | 0.7 |
| n-NONANE | 1.2 | 0.6 | 0.7 | 0.6 | 1.6 | 1.5 | 0.6 | 2.0 |
| 4-METHYLNONANE | * | * | * | * | * | * | * | * |
| n-DECANE | 1.4 | 2.3 | 0.8 | 1.2 | 2.1 | 2.0 | 1.1 | 3.2 |
| SUM OTHER PARAFFINS | 35.6 | 96.1 | 25.8 | 20.6 | 37.0 | 28.3 | 15.1 | 33.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OLEFINS | | | | | | | | |
| ETHYLENE | 9.3 | 9.0 | 5.8 | 11.1 | 17.0 | 17.5 | 12.8 | 5.6 |
| PROPENE | 3.2 | 3.1 | 2.0 | 3.6 | 5.4 | 6.4 | 3.9 | 1.6 |
| 2-METHYLPROPYLENE,BUTENE-1 | 3.7 | 2.7 | 1.8 | 3.5 | 4.2 | 5.2 | 3.5 | 2.0 |
| 1,3-BUTADIENE | 0.5 | * | 0.3 | 0.5 | 0.6 | 0.8 | 0.5 | * |
| t-2-BUTENE | 0.9 | 0.8 | 0.5 | 1.2 | 1.5 | 1.6 | 0.8 | 0.4 |
| c-2-BUTENE | 0.7 | 0.7 | 0.4 | 0.9 | 1.3 | 1.5 | 0.6 | 0.3 |
| 1-PENTENE | 0.7 | 0.5 | 0.3 | 0.8 | 2.0 | 1.6 | 0.7 | 0.5 |
| 2-METHYL-1-BUTENE | 0.8 | 0.8 | 0.5 | 1.3 | 1.8 | 2.4 | 0.9 | 0.7 |
| ISOPRENE | 1.6 | 1.4 | 2.2 | 1.8 | 1.4 | 1.2 | 1.6 | 1.1 |
| t-2-PENTENE | 1.1 | 1.1 | 0.5 | 1.6 | 2.1 | 3.0 | 1.1 | 0.8 |
| c-2-PENTENE | 1.1 | 1.1 | 0.8 | 2.0 | 1.3 | 3.8 | 1.4 | 1.7 |
| 2-METHYL-1-PENTENE,1-HEXENE | 0.3 | * | 0.4 | 1.2 | 1.5 | 2.1 | 0.0 | 0.2 |
| 2-METHYL-2-PENTENE | 0.4 | 0.4 | 0.3 | 0.8 | 0.9 | 1.3 | 0.4 | 0.5 |
| 2,2,3-TRIMETHYL-1-BUTENE | 2.1 | 1.9 | 0.9 | 2.4 | 1.9 | 7.8 | 1.0 | 9.5 |
| a-PINENE | 1.6 | 0.7 | 0.7 | 2.4 | 1.3 | 1.9 | 1.0 | 0.8 |
| SUM OTHER OLEFINS | 49.4 | 88.8 | 38.3 | 42.4 | 37.3 | 43.2 | 34.1 | 39.2 |
| AROMATICS | | | | | | | | |
| BENZENE | 4.2 | 3.4 | 2.6 | 5.3 | 8.3 | 9.6 | 5.3 | 2.8 |
| TOLUENE | 12.3 | 12.2 | 7.4 | 14.9 | 29.8 | 31.2 | 15.4 | 51.7 |
| ETHYLBENZENE | 2.2 | 1.9 | 1.3 | 2.5 | 4.3 | 5.3 | 3.0 | 3.3 |
| m&p-XYLENE | 7.2 | 6.0 | 4.2 | 8.1 | 14.8 | 18.1 | 9.9 | 10.8 |
| o-XYLENE | 3.1 | 2.6 | 1.7 | 3.3 | 5.3 | 6.9 | 3.7 | 3.6 |
| n-PROPYLBENZENE | 0.9 | 1.3 | 0.6 | 1.0 | 1.5 | 2.0 | 0.9 | 0.8 |
| m-ETHYLTOLUENE | 4.0 | 4.9 | 2.1 | 3.7 | 5.5 | 7.2 | 3.8 | 2.8 |
| p-ETHYLTOLUENE | 2.1 | 3.9 | 1.7 | 2.1 | 3.2 | 3.9 | 2.0 | 1.8 |
| 1,3,5-TRIMETHYLBENZENE | 1.5 | 2.2 | 0.9 | 1.9 | 3.1 | 4.0 | 2.1 | 2.1 |
| o-ETHYLTOLUENE | 2.0 | 2.2 | 1.2 | 1.8 | 2.7 | 3.5 | 1.9 | 1.9 |
| 1,2,4-TRIMETHYLBENZENE | 5.4 | 5.6 | 3.7 | 6.3 | 8.9 | 11.8 | 6.5 | 5.1 |
| n-DECANE | 1.3 | 1.8 | 3.3 | 2.7 | 4.6 | 5.0 | 3.1 | 4.9 |
| 1,4-DIETHYLBENZENE | 1.8 | 1.9 | 1.4 | 1.7 | 2.5 | 3.5 | 2.1 | 1.5 |
| 1,2-DIMETHYL-3-ETHYLBENZENE | 2.0 | 2.2 | 1.1 | 1.2 | 2.2 | 2.1 | 1.9 | 3.3 |
| SUM OTHER AROMATICS | 47.7 | 54.8 | 23.1 | 28.4 | 33.5 | 51.2 | 28.4 | 27.5 |
| SUMMARY | | | | | | | | |
| ACETYLENE | 5.5 | 4.9 | 2.7 | 5.6 | 10.4 | 12.6 | 6.3 | 3.9 |
| SUM UNKNOWNS | 3.4 | 6.6 | * | 0.7 | 2.6 | 2.4 | 7.5 | 2.8 |
| SUM PARAFFINS | 130.7 | 229.4 | 86.6 | 151.2 | 302.3 | 276.5 | 130.2 | 864.4 |
| SUM OLEFINS | 78.1 | 113.5 | 56.2 | 78.2 | 82.3 | 102.0 | 64.9 | 65.4 |
| SUM AROMATICS | 98.6 | 107.6 | 56.9 | 85.6 | 130.9 | 165.9 | 90.7 | 124.5 |
| SUM HYDROCARBONS | 316.4 | 462.1 | 202.6 | 321.5 | 528.6 | 559.7 | 299.7 | 1061.2 |

# APPENDIX B

## RESEARCH PROTOCOL METHOD FOR ANALYSIS OF $C_2$-$C_{12}$ HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

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# RESEARCH PROTOCOL METHOD FOR ANALYSIS OF C2-C12 HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

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## DISCLAIMER

The Research Protocol/Method (RPM) described herein should not be interpreted as a generally accepted standard or equivalent method or procedure. This RPM was developed for use within the Atmospheric Sciences Research Laboratory of EPA and may not be applicable to the needs of other organizations.

# RESEARCH PROTOCOL METHOD FOR ANALYSIS OF C2-C12 HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

## 1.0 PROCEDURAL

### 1.1 Scope and Application

This method is intended for analysis of C2-C12 hydrocarbons in ambient air. The method's minimum quantification limit (MQL) is 0.12 ppb carbon; the method's minimum detection limit (MDL) is 0.04 ppb carbon. The MQL and MDL were determined by the method described by Knoll (reference 1).

### 1.2 Summary of Method

A known volume of sample is passed through a trap cooled with liquid oxygen or liquid argon. This traps out C2 and heavier hydrocarbons (without trapping methane). The trap is warmed with a hot water bath, which causes the injection of the trap contents into a gas chromatograph for separation of the C2-C12 hydrocarbons. The resultant peaks are detected by a flame-ionization detector (FID) and quantified by an electronic integrator.

### 1.3 Definitions

This RPM uses no definitions that are unique to this document.

### 1.4 Interferences

Any compound that elutes with the same retention time as any of the C2-C12 hydrocarbons and responds to flame ionization detection will interfere.

### 1.5 Personnel Requirements

The researcher using this procedure is expected to be familiar with gas chromatographic practices and procedures.

### 1.6 Facilities Requirements

No special laboratory facilities are required.

### 1.7 Safety Requirements

#### 1.7.1 Compressed Gases

See pages F14 through F18 of the EPA/RTP Safety Manual (ref. 2) for precautions.

#### 1.7.1.1 Hydrogen

Hydrogen gas cylinders (used for FID fuel) are not permitted in the RTP Tech Center. Hydrogen cylinders and their regulators must be secured outside the building, and a pressure line run into the laboratory.

#### 1.7.2 Vacuum Systems

See page G9 of the EPA/RTP Safety Manual (ref. 2) for precautions.

#### 1.7.3 Heated Surfaces

The GC injection ports, column, column oven, and detectors are maintained at temperatures high enough to cause burns. The researcher should exercise caution to avoid contact with these surfaces.

### 1.7.4 Immersion Heater

WARNING - The immersion heater must always be used in water. Operation in air will cause very high temperatures to be reached and possible ignition of combustible materials. In addition, operation of the immersion heater in air greatly reduces its life.

### 1.7.5 Cryogenic Liquids

See pages F18 through F20 of the EPA/RTP Safety Manual (reference 2) for precautions.

### 1.7.5.1 Liquid Oxygen (if used)

WARNING - Strong oxidant. Vigorously promotes combustion. Avoid contact with all flammable materials. Containers, lines, valves, and vents must be free of oil and grease.

WARNING - Cryogenic fluid. May cause severe frostbite. Wear eye and hand protection.

### 1.7.5.2 Liquid Nitrogen and Liquid Argon (if used)

WARNING - Cryogenic fluid. May cause severe frostbite. Wear eye and hand protection. Use with adequate room ventilation. Keep contact with air to a minimum to avoid buildup of liquid oxygen (see above).

## 1.8 Apparatus

### 1.8.1 Gas Chromatograph

Gas Chromatograph with temperature-programmed oven, flame ionization detector (FID), and electronic integrator.

### 1.8.2 Inlet System (Figure 1)

The inlet system is illustrated in Figure 1. The automatic six-port gas sampling valves (V4 and V5) are located on an aluminum block which is temperature-regulated. All other valves are at ambient temperature.

#### 1.8.2.1 Trap

The sampling trap is made of clean, chromatographic grade 3.2 mm (1/8 in) OD stainless steel tubing, 16 cm in length, which is bent into a U-shape approximately 7 cm from each end so that the U is approximately 2.2 cm in width. Clean, untreated 60/80 mesh glass beads are poured in the U to a height of approximately 3 cm. Silanized glass wool is added as a plug to the last cm of both ends. Swagelok (TM) 1/16"-1/8" unions are added to each end for connection to the gas sampling valve.

#### 1.8.2.2 Mass Flow Meter

A thermal conductivity mass flow meter (M1) (TYLAN Corp model FM 360, 0 to 500 standard $cm^3$/min or equivalent, with readout box) is used to measure the flow into the cryogenic trap.

#### 1.8.2.3 Pressure Gauge

A precision Bourdon gauge (P1), range 0 to 200 Torr, is used. A gauge with a range of 0 to 400 Torr is also acceptable.

#### 1.8.2.4 Connection of Inlet System to Column

A 10" length of 1/16-in OD stainless steel is used to connect the gas sampling valve to the column. At one end of the tubing is a

1/16-in Swagelok SS union; at the other end is a 1/16-in Swagelok chromatographic union (cat. # SS-1F0-6GC) which is bored through so that the fused silica column can be pushed through about 1 mm with a snug fit. Vespel™ ferrules are used.

### 1.8.3 Gas Chromatograph Column

Type: fused silica capillary column.
Diameter: 0.32 mm ID.
Length: 60 m.
Liquid Phase: DB-1 bonded liquid phase.
Liquid Phase Thickness: 1.0 μm.

### 1.8.4 Vacuum Pump

An oil-less diaphragm pump (such as Thomas model 2106CA13-515-2) is used to evacuate the inlet system.

CAUTION: Due to the possibility of contamination, oil-sealed vacuum pumps should not be used.

### 1.8.5 Tubing and Connectors

- All tubing is chromatographic grade stainless steel.
- All connections are stainless steel compression tube fittings (Swagelok or equivalent).

### 1.8.6 Regulators

Carrier gas, hydrogen, and air delivery pressures are controlled by two-stage regulators mounted at the tank.

CAUTION: Due to the possibility of contamination by organic materials, only regulators with stainless-steel diaphragms should be used.

### 1.8.7 Immersion Heater and SS Dewar

An immersion heater is used to heat a water bath which is placed around the trap to volatilize the trap contents. We use a 9-in Therma-just Model 94/8 (Cole-Palmer cat. #C-3050-60). We use a 1040 mL capacity Aladdin SS Dewar as the water bath.

## 1.9 Reagents/Materials

### 1.9.1 Helium Carrier Gas:

High purity (H.P. grade, minimum purity 99.995 percent) helium carrier gas.

### 1.9.2 Detector Air

Linde zero grade (total hydrocarbons <1 ppm; $H_2O$ <3ppm) or equivalent.

### 1.9.3 Detector Hydrogen

Prepurified grade 99.99 percent pure or equivalent.

WARNING - Fire hazard. See safety precautions.

### 1.9.4 Detector Makeup Nitrogen

Prepurified grade 99.99 percent pure (or equivalent).

### 1.9.5 Liquid Nitrogen (for He purification)

WARNING - Cryogenic liquid - see safety precautions.

### 1.9.6 Liquid Oxygen (for trap cooling)

WARNING - Strong oxidant - see safety precautions.

WARNING - Cryogenic liquid - see safety precautions.

### 1.9.7 Liquid Argon (for trap cooling)

WARNING - Cryogenic liquid - see safety precautions.

Liquid argon may be used instead of liquid oxygen for trap cooling. Although liquid argon is more expensive, it is inert, and its use eliminates the oxidant hazard associated with liquid oxygen.

### 1.9.8 Propane in Air (for calibration)

National Bureau of Standards (NBS) Standard Reference Material (SRM) 1665, 3 ppm (nominal) propane in air. (See section 2.2.)

### 1.9.9 Instrument Air Vacuum

The six-port gas sampling valves require clean filtered air at 350 kPa (35 psig) and vacuum at approximately 20 in Hg (500 Torr) for operation. These are obtained from the building (RTP Tech Center) supplies.

## 1.10 Sample/Sampling Procedure

This RPM is limited to the laboratory analysis. Field sampling procedure is covered separately. (See reference 3.)

## 1.11 Calibration and Standardization

### 1.11.1 Determination of Retention Times

A propane in air sample should be analyzed. Adjust the carrier gas linear velocity such that the propane peak elutes at 3.105 min (3 min 6 sec) following injection. Using the column and temperatures specified in this document, these compounds should elute in the order and at the retention times given in Table 2. The actual elution times should be determined by preparing and analyzing known samples of each compound.

### 1.11.2 Calibration

The response of the FID is linear with respect to the number of carbon atoms present in the detected compound (reference 3). Thus, it is convenient to measure concentration (conc.) in terms of parts-per-billion-carbon (ppbC) where

$$\text{Conc., ppbC} = (\text{number of carbon atoms in compound})(\text{Conc., ppb}).$$

For a fixed sample volume, the concentration is proportional to the area under the chromatographic peak:

$$\text{Conc., ppbC} = (k)(\text{Area})$$

where: Area is in integrator counts and k is an experimentally determined calibration constant (ppbC/count). The same value of k is used for all compounds.

The calibration constant k is determined by analysis of an NBS SRM propane in air standard (see section 1.9.8). Three to five determinations are made and the median value taken. The value of k is then given by

$$k(\text{ppbC/count}) = \frac{3(\text{Conc. of NBS Standard Propane, ppm})(1000\ \text{ppbC/ppmC})}{\text{Median Area Count}}$$

### 1.12 Analysis Procedures

The analysis procedure is divided into two stages: preparation, and sample concentration and analysis.

### 1.12.1 Preparation

A. Adjustment of Flow Rates (except carrier gas)

1) Turn off the FID and FID heater - allow to cool to room temperature.

2) Attach the detector output (see instrument instruction manual) to the soap film flow meter.

3) Set the carrier gas pressure to 200 kPa (29 psia).

4) Set the hydrogen pressure to 250 kPa (35 psia). WARNING - Hydrogen delivery pressure should be less than detector air pressure.

Adjust the hydrogen flow to 28-30 $cm^3$/min.

5) Set the detector air pressure to 300 kPa (~45 psia). Adjust the detector flow to 430 $cm^3$/min ± 10 $cm^3$/min.

6) Set the makeup nitrogen pressure to 300 kPa (45 psia). Adjust the total makeup and carrier gas flow rate to 30 $cm^3$/min.

NOTE: The above flow rates were optimized for the given column on an HP 5880A gas chromatograph with FID. If another gas chromatograph is used, adjust the flow rates to obtain maximum sensitivity according to the instructions for that instrument.

B. Adjustment of Carrier Gas Flow Rate

Verify that the carrier gas pressure is at 29 kPa. Refer to Section 1.11.1 for fine tuning of the carrier gas flow rate. Flow rate is dependent upon the column head pressure.

C. Set Up Detector

With the flow rates adjusted as in Step A, remove the adapter from the FID chimney and set the detector temperature to 250°C. Light the detector with the ignitor.

D. System Temperatures

Detector = 250°C.

Initial Oven Temperature = -50°C.

Oven Temperature Programming Rate = 8°C/min (temperature programming started 2 minutes after time of injection).

Final Oven Temperature = 250°C.

Six-Port Valve Temperature = 60°C.

### 1.12.2 Sample Concentration and Injection

Preconcentration and injection of the sample is carried out as follows. Initial conditions are these: V2 is closed, vacuum pump is on, valves V3 and V6 are closed, gas sampling valves V4 and V5 are in the off position (Figure 1). Attach the canister to be analyzed to the inlet line. Open valves V3 and V6 to evacuate the system. When the vacuum gauge (P1) reaches 50 torr or below, close valve V6. The system should remain at or very near 50 torr. A rising pressure indicates a leak in the system.

The trap is immersed in a Dewar flask containing liquid oxygen sufficient to cover the "U" but placed so that the compression fittings are neither inside the flask nor touching the liquid oxygen. If the fittings are inside the flask, sample will condense in the fittings instead of on the trap. This could result in either plugged carrier gas flow due to ice forming in the fitting and/or improper sample plug injection of the trapped hydrocarbons. Open valve V2 and adjust valve V1 to a flow of 100 $cm^3$/min, using mass flowmeter M1. When P1 is at 60 Torr, actuate valve V4 (see Figure 2). Adjust flow rate back to 100 $cm^3$/min, using valve V1, if necessary. When P1 reads 140 Torr, inject sample onto column by actuating valve V5, removing liquid oxygen flask from trap, immersing the U-trap in the hot water bath, and pressing start button on electronic integrator (and GC, if needed); deactuate valve V4 (see Figure 3).

> CAUTION: It is extremely important that V5 be actuated before removing the liquid oxygen flask from the trap. Failure to observe this sequence will permit light hydrocarbons to be vented before injection.

At a time of 2 minutes into the run, deactuate valve V5. Stop the run manually or automatically after approximately 35 minutes or when the last compound of interest elutes. Identify sample peaks by their retention times, as determined in Section 1.11.1. An example chromatograph is shown as Figure 4.

## 1.13 Calculations

Using the calibration constant (k) determined in section 1.11.2, the concentration of each compound (peak) can be calculated as follows:

$$\text{Concentration, ppbC} = (k)(\text{Area})$$

where the area is in integrator counts. Most integrators may be programmed to perform this calculation and present results directly in units of concentration.

## 1.14 Data Reporting

The concentration of each C2-12 hydrocarbon should be reported. The integrator chart of sample and calibration standard should be saved as a record of analysis.

## 1.15 Corrective Action

Corrective action should be taken whenever any of the following are observed:

- Variation of retention times.
- Poor or ill-shaped peaks.
- Fused or combined peaks.
- Presence of peaks which elute with the compounds of interest (C2-12 hydrocarbons).
- Integrator failure to correctly recognize start time, stop time, or to correctly determine baseline and peak areas.
- Variation of response, as shown by more than a ± 15 percent change in calibration constant.

Determination of the proper corrective action requires a knowledge of chromatographic principles and instrumentation beyond the scope of this document.

## 1.16 Method Precision and Accuracy

Based on repeated analysis of NBS SRM propane in air standards over a one year period, the variation of the calibration constant (k) was found to be within ± 15 percent of the initial value. Replicate analysis of ambient air samples for total nonmethane organic compounds (NMOC) using a similar technique (reference 2) showed an analytical precision of approximately ± 12 percent. The precision for C2 hydrocarbons should be similar. Due to the lack of suitable NBS standards, the accuracy for analysis of C2-12 hydrocarbons cannot be directly determined using the propane standard.

## 2.0 QUALITY CONTROL

### 2.1 QC Checks and Frequency

One sample of NBS SRM propane in air is analyzed each day that a sample is run. The NBS SRM certification must be current.

### 2.2 Control Charts

The percent deviation of the daily NBS SRM propane sample (Section 1.9.8) from the NBS certified value is plotted on a control chart (Figure 5). The deviation should not exceed ± 15 percent. If this occurs, the system should be checked for proper operation. If the condition persists, the detector should be cleaned and checked for correct operation. If the response remains outside the control limit (± 15 percent), then the instrument should be recalibrated.

### 2.3 Calibration and Maintenance of Components

Components such as the pressure gauge, the mass flow controller, and the soap bubble flowmeter should have a manufacturer's certificate of calibration at the time of purchase. The performance of these components is periodically checked and maintenance or replacement performed. Chromatographic columns and sample traps are replaced when, in the analyst's opinion, they have degraded.

## 3.0 REFERENCES

1. Knoll, J. E., Journal of Chromatographic Sciences, Vol. 23, p. 422, September 1985.

2. EPA/RTP Safety Manual, Support Services Office, Environmental Research Center, Research Triangle Park, NC 27711.

3. Dietz, W. A., Journal of Gas Chromatography, Vol. 5, pp. 68-71 (1967).

TABLE 1. LEGEND FOR FIGURES 1, 2, AND 3

$V_1$ = stainless steel needle valve

$V_2$, $V_3$, and $V_6$ = shut-off valves (a)

$V_4$ and $V_5$ = 6-port electrically actuated gas sampling valve (attached to HP 5880A Gas Chromatograph)(b)

$M_1$ = 0 to 500 $cm^3$/min mass flow meter

$P_1$ = 0 to 200 Torr Wallace and Tierman Bourdon Gauge

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(a) V2 is a stainless steel bellows valve on the canister. V3 and V6 are toggle valves; they may be stainless steel or brass.

(b) The gas sampling valve used should be capable of holding a vacuum down to 10 Torr for proper operation.

## TABLE 2. HYDROCARBON IDENTIFICATIONS AND RETENTION TIMES

### HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 0 | 0.000 | 0 | 9.000 | 0.3000 | 0 | Uncalibrated |
| 101 | 2.018 | 1 | 9.000 | 0.3000 | 0 | ETHANE |
| 102 | 1.830 | 1 | 9.000 | 0.3000 | 0 | ETHYLENE |
| 103 | 1.960 | 1 | 9.000 | 0.3000 | 0 | ACETYLENE |
| 104 | 2.988 | 1 | 9.000 | 0.3000 | 0 | PROPENE |
| 105 | 3.105 | 1 | 9.000 | 0.3000 | 0 | PROPANE |
| 106 | 3.373 | 1 | 9.000 | 0.3000 | 0 | Unknown |
| 107 | 3.540 | 1 | 9.000 | 0.3000 | 0 | PARAFFIN |
| 108 | 4.017 | 1 | 9.000 | 0.3000 | 0 | OLEFIN |
| 109 | 4.450 | 1 | 9.000 | 0.3000 | 0 | OLEFIN |
| 110 | 5.105 | 1 | 9.000 | 0.3000 | 1 | ISOBUTANE |
| 111 | 5.423 | 1 | 9.000 | 0.3000 | 0 | Unknown |
| 112 | 5.661 | 1 | 9.000 | 0.3000 | 0 | Unknown |
| 113 | 6.115 | 1 | 9.000 | 0.3000 | 0 | 2-METHYL PROPYLENE |
| 114 | 6.286 | 1 | 9.000 | 0.3000 | 0 | BUTENE-1 |
| 115 | 6.462 | 1 | 9.000 | 0.3000 | 1 | n-BUTANE |
| 116 | 6.937 | 1 | 9.000 | 0.3000 | 0 | t-2-BUTENE |
| 117 | 7.500 | 1 | 9.000 | 0.3000 | 0 | c-2-BUTENE |
| 118 | 8.739 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 119 | 9.398 | 1 | 9.000 | 0.3000 | 1 | ISOPENTANE |
| 120 | 9.652 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 121 | 10.000 | 1 | 9.000 | 0.3000 | 0 | 1-PENTENE |
| 122 | 10.086 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 123 | 10.272 | 1 | 9.000 | 0.3000 | 0 | 2-METHYL-1-BUTENE |
| 124 | 10.410 | 1 | 9.000 | 0.3000 | 1 | n-PENTANE |
| 125 | 10.560 | 1 | 9.000 | 0.3000 | 0 | ISOPRENE |
| 126 | 10.737 | 1 | 9.000 | 0.3000 | 0 | t-2-PENTENE |
| 127 | 11.008 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 128 | 11.116 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 129 | 11.172 | 1 | 9.000 | 0.3000 | 0 | c-2-PENTENE |
| 130 | 11.256 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 131 | 11.505 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 132 | 11.551 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 133 | 11.672 | 1 | 9.000 | 0.3000 | 0 | 2,2-DIMETHYLBUTANE |
| 134 | 11.994 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 135 | 12.252 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 136 | 12.486 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 137 | 12.490 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 138 | 12.631 | 1 | 9.000 | 0.3000 | 0 | CYCLOPENTANE |
| 139 | 12.763 | 1 | 9.000 | 0.3000 | 0 | 2,3-DIMETHYLBUTANE |
| 140 | 12.848 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 141 | 12.957 | 1 | 9.000 | 0.3000 | 1 | 2-METHYLPENTANE |
| 142 | 13.031 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 143 | 13.097 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 144 | 13.369 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 145 | 13.440 | 1 | 9.000 | 0.3000 | 0 | 3-METHYLPENTANE |
| 146 | 13.643 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 147 | 13.850 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 148 | 14.062 | 1 | 9.000 | 0.3000 | 1 | n-HEXANE |
| 149 | 14.164 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 150 | 14.240 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |

TABLE 2. (continued)

HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 151 | 14.317 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 152 | 14.406 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 153 | 14.543 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 154 | 14.605 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFINN |
| 155 | 14.750 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 156 | 14.898 | 1 | 9.000 | 0.3000 | 0 | METHYLCYCLOPENTANE |
| 157 | 15.085 | 1 | 9.000 | 0.3000 | 0 | 2,4-DIMETHYLPENTANE |
| 158 | 15.177 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 159 | 15.281 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 160 | 15.523 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 161 | 15.657 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 162 | 15.681 | 1 | 9.000 | 0.3000 | 1 | BENZENE |
| 163 | 15.878 | 1 | 9.000 | 0.3000 | 0 | 3,3-DIMETHYLPENTANE |
| 164 | 15.980 | 1 | 9.000 | 0.3000 | 0 | CYCLOHEXANE |
| 165 | 16.056 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 166 | 16.320 | 1 | 9.000 | 0.3000 | 0 | 2-METHYLHEXANE |
| 167 | 16.358 | 1 | 9.000 | 0.3000 | 0 | 2,3-DIMETHYLPENTANE |
| 168 | 16.437 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 169 | 16.507 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 170 | 16.592 | 1 | 9.000 | 0.3000 | 0 | 3-METHYLHEXANE |
| 171 | 16.785 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 172 | 16.916 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 173 | 17.007 | 1 | 9.000 | 0.3000 | 0 | 2,2,4-TRIMETHYLPENTANE |
| 174 | 17.316 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 175 | 17.358 | 1 | 9.000 | 0.3000 | 0 | n-HEPTANE |
| 176 | 17.507 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 177 | 17.667 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 178 | 17.762 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 179 | 17.984 | 1 | 9.000 | 0.3000 | 0 | METHYLCYCLOHEXANE |
| 180 | 18.343 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 181 | 18.407 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 182 | 18.602 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 183 | 18.816 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 184 | 18.897 | 1 | 9.000 | 0.3000 | 0 | 2,3,4-TRIMETHYLPENTANE |
| 185 | 19.022 | 1 | 9.000 | 0.3000 | 1 | TOLUENE |
| 186 | 19.170 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 187 | 19.202 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 188 | 19.257 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 189 | 19.361 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 190 | 19.408 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 191 | 19.585 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 192 | 19.701 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 193 | 19.905 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 194 | 20.001 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 195 | 20.109 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 196 | 20.180 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 197 | 20.250 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 198 | 20.330 | 1 | 9.000 | 0.3000 | 0 | n-OCTANE |
| 199 | 20.377 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 200 | 20.470 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 201 | 20.662 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |

TABLE 2. (continued)

HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 202 | 20.827 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 203 | 20.949 | 1 | 9.000 | 0.3000 | 0 | C9 OLEFIN |
| 204 | 21.009 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 205 | 21.123 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 206 | 21.172 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 207 | 21.223 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 208 | 21.277 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 209 | 21.369 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 210 | 21.425 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 211 | 21.524 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 212 | 21.596 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 213 | 21.744 | 1 | 9.000 | 0.3000 | 0 | ETHYLBENZENE |
| 214 | 21.842 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 215 | 21.973 | 1 | 9.000 | 0.3000 | 1 | m&p-XYLENE |
| 216 | 22.140 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 217 | 22.235 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 218 | 22.322 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 219 | 22.415 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 220 | 22.462 | 1 | 9.000 | 0.3000 | 0 | C9 OLEFIN |
| 221 | 22.518 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 222 | 22.601 | 1 | 9.000 | 0.3000 | 0 | o-XYLENE |
| 223 | 22.688 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 224 | 22.733 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 225 | 22.785 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 226 | 22.860 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 227 | 22.940 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 228 | 23.034 | 1 | 9.000 | 0.3000 | 0 | n-NONANE |
| 229 | 23.174 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 230 | 23.243 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 231 | 23.305 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 232 | 23.455 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 233 | 23.540 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 234 | 23.635 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 235 | 23.706 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 236 | 23.824 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 237 | 23.883 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 238 | 23.940 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 239 | 24.007 | 1 | 9.000 | 0.3000 | 0 | C10 OLEFIN |
| 240 | 24.107 | 1 | 9.000 | 0.3000 | 0 | C10 OLEFIN |
| 241 | 24.177 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 242 | 24.212 | 1 | 9.000 | 0.3000 | 0 | n-PROPYLBENZENE |
| 243 | 24.310 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 244 | 24.386 | 1 | 9.000 | 0.3000 | 0 | p-ETHYLTOLUENE |
| 245 | 24.447 | 1 | 9.000 | 0.3000 | 0 | m-ETHYLTOLUENE |
| 246 | 24.578 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 247 | 24.632 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 248 | 24.694 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 249 | 24.852 | 1 | 9.000 | 0.3000 | 0 | o-ETHYLTOLUENE |
| 250 | 24.979 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 251 | 25.051 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 252 | 25.122 | 1 | 9.000 | 0.3000 | 0 | C10 OLEFIN |

TABLE 2. (continued)

HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 253 | 25.217 | 1 | 9.000 | 0.3000 | 0 | 1,2,4-TRIMETHYLBENZENE |
| 254 | 25.320 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 255 | 25.408 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 256 | 25.520 | 1 | 9.000 | 0.3000 | 0 | n-DECANE |
| 257 | 25.597 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 258 | 25.661 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 259 | 25.770 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 260 | 25.909 | 1 | 9.000 | 0.3000 | 0 | 1,2,3-TRIMETHYLBENZENE |
| 261 | 25.972 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 262 | 26.043 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 263 | 26.103 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 264 | 26.218 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 265 | 26.379 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 266 | 26.497 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 267 | 26.567 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 268 | 26.710 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 269 | 26.807 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 270 | 26.842 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 271 | 26.877 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 272 | 26.960 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 273 | 27.023 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 274 | 27.142 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 275 | 27.181 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 276 | 27.227 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 277 | 27.363 | 1 | 9.000 | 0.3000 | 0 | 1,2-DIMETHYL-4-ETHYLBENZENE |
| 278 | 27.421 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 279 | 27.601 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 280 | 27.680 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 281 | 27.769 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 282 | 27.809 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 283 | 27.953 | 1 | 9.000 | 0.3000 | 0 | 1,2-DIMETHYL-3-ETHYLBENZENE |
| 284 | 28.040 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 285 | 28.116 | 1 | 9.000 | 0.3000 | 0 | 1,2,4,5-TETRAMETHYLBENZENE |
| 286 | 28.193 | 1 | 9.000 | 0.3000 | 0 | 1,2,3,5-TETRAMETHYLBENZENE |
| 287 | 28.244 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 288 | 28.360 | 1 | 9.000 | 0.3000 | 0 | C11 PARAFFIN |
| 289 | 20.763 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 290 | 28.623 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 291 | 28.662 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 292 | 28.730 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 293 | 28.845 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 294 | 28.923 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 295 | 29.056 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 296 | 29.120 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 297 | 29.199 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 298 | 29.270 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 299 | 29.350 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 300 | 29.570 | 1 | 9.000 | 0.3000 | 1 | C11 AROMATIC |
| 301 | 29.695 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 302 | 29.840 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 303 | 29.888 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |

TABLE 2. (continued)

HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 304 | 29.939 | 1 | 9.000 | 0.3000 | 0 | C12 PARAFFIN |
| 305 | 30.077 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 306 | 30.159 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 307 | 30.210 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 308 | 30.283 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 309 | 30.367 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 310 | 30.598 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 311 | 30.727 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 312 | 30.770 | 1 | 9.000 | 0.3000 | 0 | C12 PARAFFIN |
| 313 | 30.821 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 314 | 30.908 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 315 | 31.070 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 316 | 31.162 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 317 | 31.253 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 318 | 31.305 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 319 | 31.383 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 320 | 31.471 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 321 | 31.617 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 322 | 31.667 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 323 | 31.924 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 324 | 31.983 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 325 | 32.095 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 326 | 32.210 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 327 | 32.340 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 328 | 32.380 | 1 | 9.000 | 0.3000 | 0 | C13 PRAFFIN |
| 329 | 32.530 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 330 | 32.623 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 331 | 32.718 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 332 | 32.823 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 333 | 32.923 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 334 | 33.060 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 335 | 33.098 | 1 | 9.000 | 0.3000 | 0 | C13 PARAFFIN |
| 336 | 33.147 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 337 | 33.450 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 338 | 33.802 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 339 | 33.817 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 340 | 36.057 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 341 | 7.340 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 342 | 8.227 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 343 | 8.350 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 344 | 13.673 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 345 | 15.493 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 346 | 16.156 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 347 | 16.637 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 348 | 17.196 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 349 | 17.399 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 350 | 17.560 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 351 | 18.260 | 1 | 9.000 | 0.3000 | 0 | C8 OLEFIN |
| 352 | 19.472 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 353 | 20.063 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 354 | 20.543 | 1 | 9.000 | 0.3000 | 0 | C9 OLEFIN |

TABLE 2. (continued)

HP5880 Calibration Table

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 355 | 27.487 | 1 | 9.000 | 0.3000 | 0 | C11 OLEFIN |
| 356 | 27.550 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 357 | 28.505 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 358 | 30.307 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 359 | 30.444 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 360 | 30.660 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 361 | 30.980 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 362 | 31.752 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 363 | 31.877 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 364 | 15.617 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 365 | 16.860 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 366 | 18.080 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 367 | 22.170 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 369 | 13.310 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 370 | 28.970 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 371 | 15.020 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 372 | 22.150 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 373 | 27.125 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 374 | 28.460 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 375 | 3.926 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 376 | 13.520 | 1 | 9.000 | 0.3000 | 0 | C6 OLEFIN |
| 377 | 29.413 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 378 | 35.220 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 379 | 28.550 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 380 | 29.032 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 381 | 33.376 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 382 | 3.293 | 1 | 9.000 | 0.3000 | 0 | C3 PARAFFIN |
| 383 | 4.377 | 1 | 9.000 | 0.3000 | 0 | C3 PARAFFIN |
| 384 | 7.206 | 1 | 9.000 | 0.3000 | 0 | C4 PARAFFIN |
| 385 | 12.409 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 386 | 14.953 | 1 | 9.000 | 0.3000 | 0 | C7 PARAFFIN |
| 387 | 15.780 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 388 | 19.150 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 389 | 20.760 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 390 | 34.410 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 391 | 7.580 | 1 | 9.000 | 0.3000 | 0 | C4 PARAFFIN |
| 392 | 8.850 | 1 | 9.000 | 0.3000 | 0 | C4 OLEFIN |
| 393 | 9.700 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 394 | 10.120 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 395 | 11.790 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 396 | 12.150 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 397 | 18.650 | 1 | 9.000 | 0.3000 | 0 | C8 PARAFFIN |
| 398 | 21.460 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 399 | 21.890 | 1 | 9.000 | 0.3000 | 0 | C9 PARAFFIN |
| 400 | 23.770 | 1 | 9.000 | 0.3000 | 0 | C10 PARAFFIN |
| 401 | 26.630 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 402 | 27.310 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 403 | 27.850 | 1 | 9.000 | 0.3000 | 0 | C10 AROMATIC |
| 404 | 32.460 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 405 | 34.590 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 406 | 35.870 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |

TABLE 2. (continued)

HP5880 Calibration Table Report

| CAL# | Retention Time | Level | Amount | Area Amount | REF | Compound Name |
|---|---|---|---|---|---|---|
| 407 | 13.140 | 1 | 9.000 | 0.3000 | 0 | C6 PARAFFIN |
| 408 | 25.830 | 1 | 9.000 | 0.3000 | 0 | C9 AROMATIC |
| 409 | 30.530 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |
| 410 | 33.270 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 411 | 34.310 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 412 | 9.580 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 413 | 10.890 | 1 | 9.000 | 0.3000 | 0 | C5 OLEFIN |
| 414 | 31.710 | 1 | 9.000 | 0.3000 | 0 | C12 AROMATIC |
| 415 | 15.480 | 1 | 9.000 | 0.3000 | 0 | C7 OLEFIN |
| 416 | 30.280 | 1 | 9.000 | 0.3000 | 0 | C11 AROMATIC |

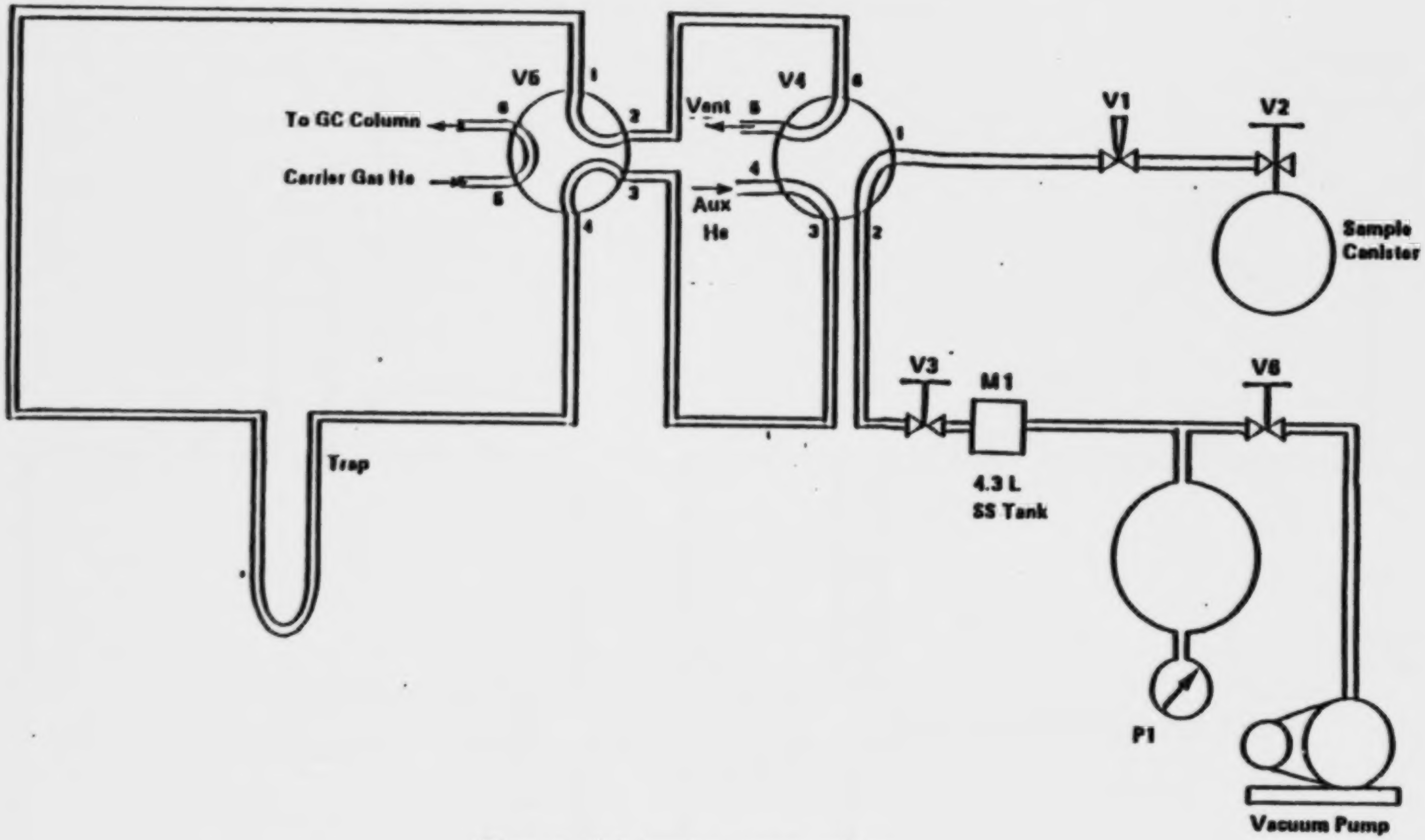
V5
1
2
3
4
5
6
To GC Column
Carrier Gas He
V4
Vent
Aux
He
V1
V2
Sample
Canister
V3
M1
4.3 L
SS Tank
V6
P1
Vacuum Pump
Trap

Figure 1. Inlet system—purge position.

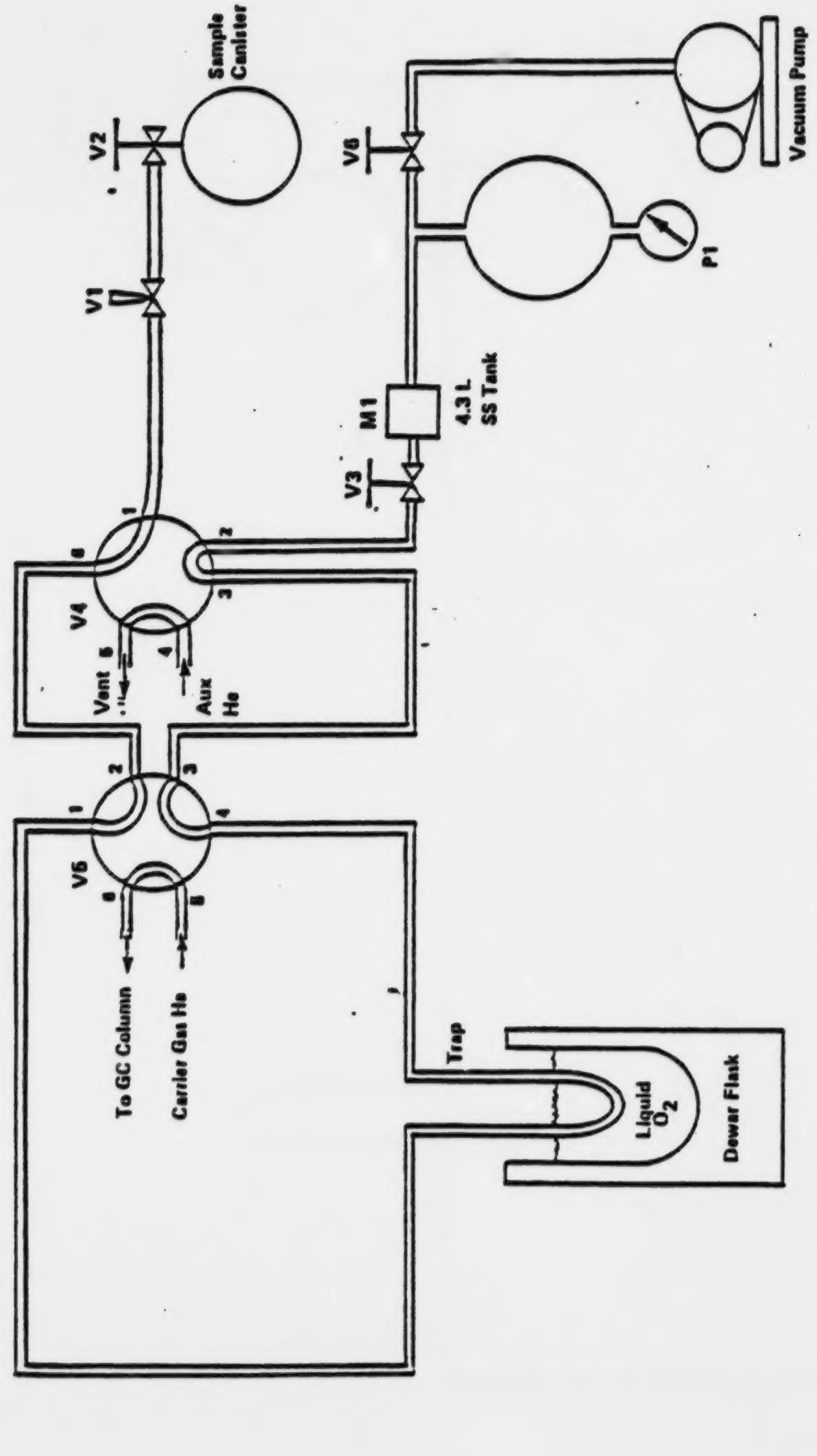
Sample Canister
V2
V1
V6
Vacuum Pump
P1
M1
4.3 L SS Tank
V3
V4
1
2
3
4
5
6
Vent
Aux He
V5
1
2
3
4
5
6
To GC Column
Carrier Gas He
Trap
Liquid $O_2$
Dewar Flask

Figure 2. Inlet system—sample trapping position.

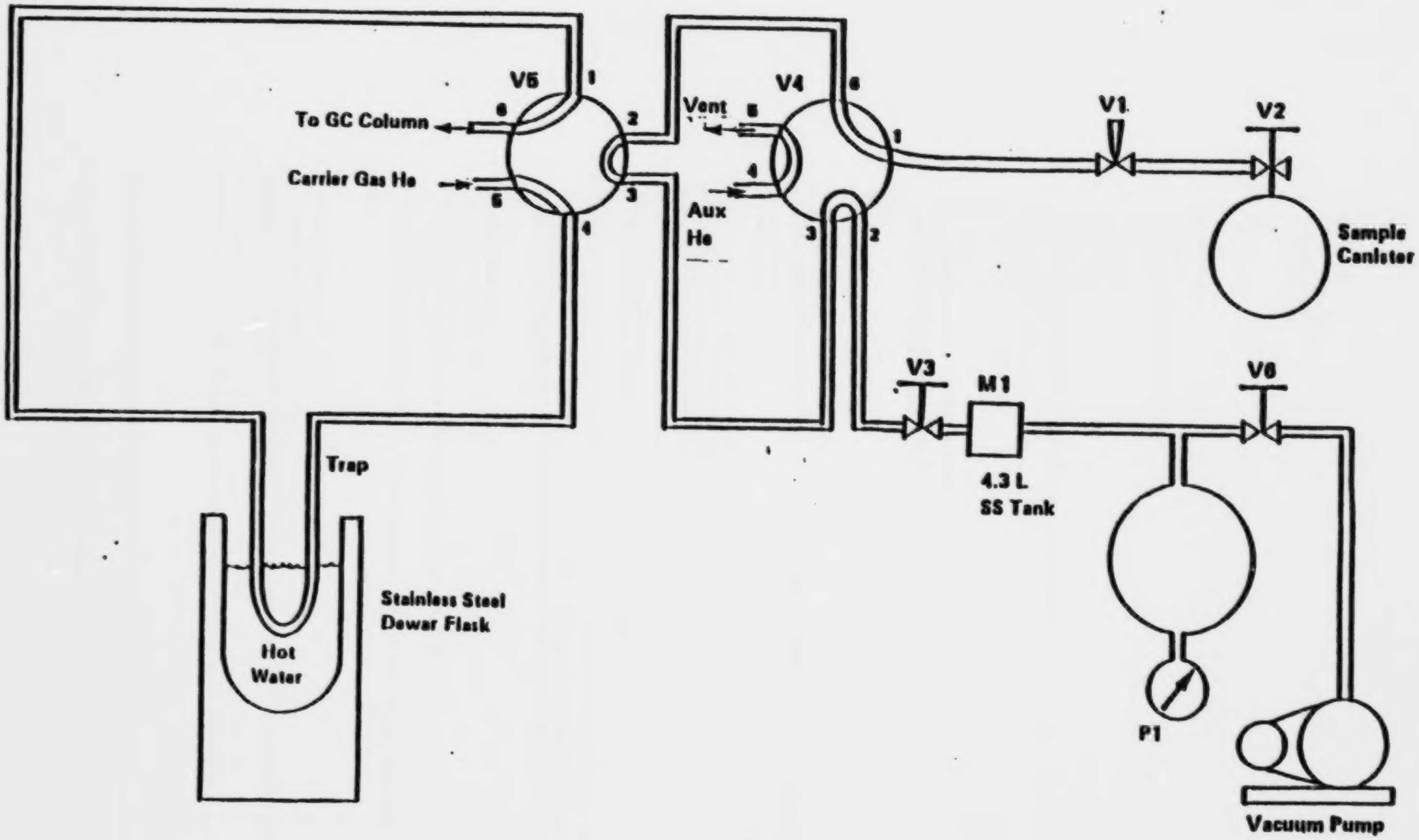
V5
1
2
3
4
5
6
To GC Column
Carrier Gas He
Vent
V4
Aux
He
V1
V2
Sample
Canister
V3
M1
V6
4.3 L
SS Tank
P1
Vacuum Pump
Trap
Stainless Steel
Dewar Flask
Hot
Water

Figure 3. Inlet system—injection position.

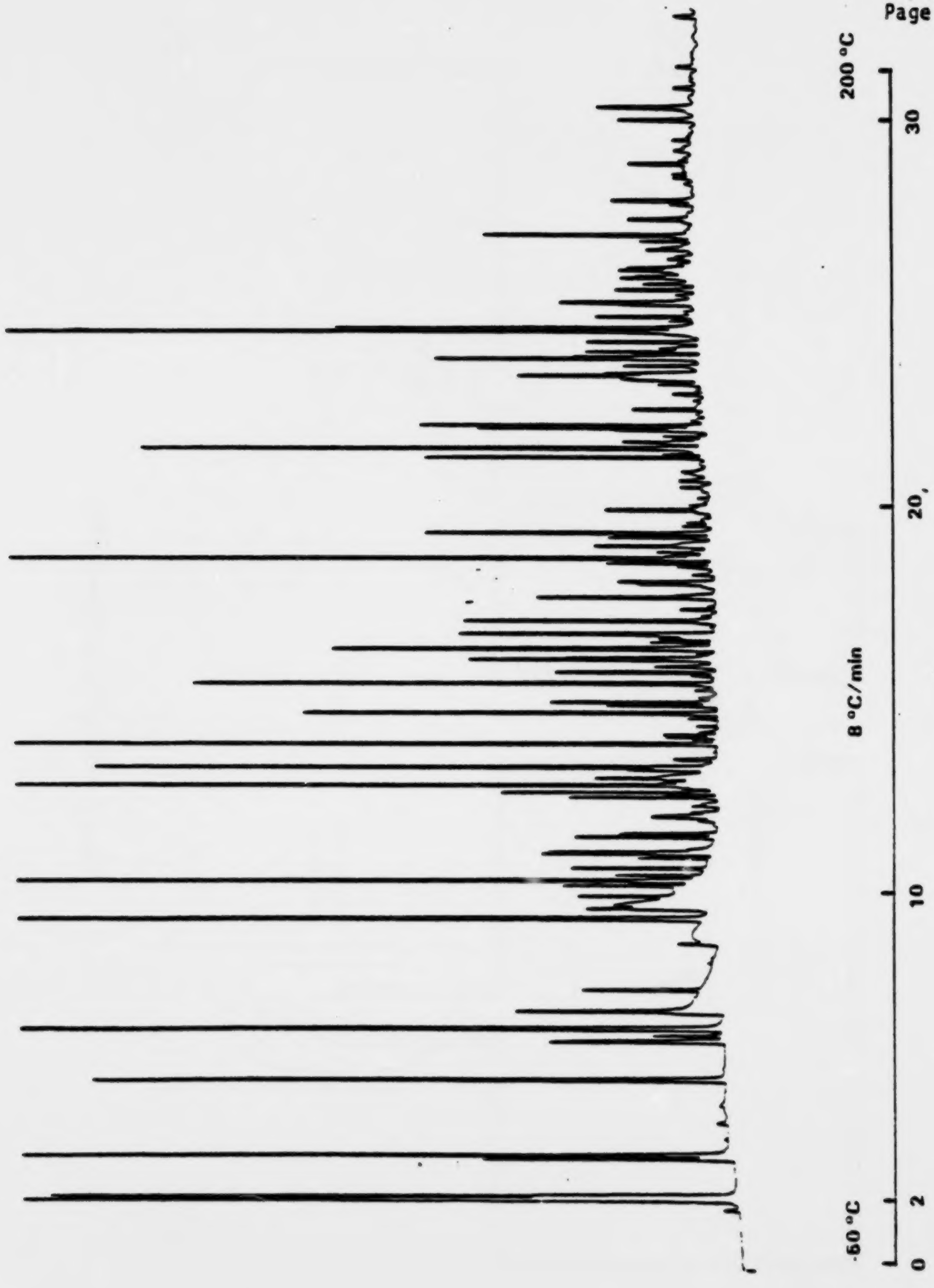

Figure 4. Gas chromatogram of ambient air C-2 to C-12 hydrocarbons separated on a DB-1 fused silica capillary column.

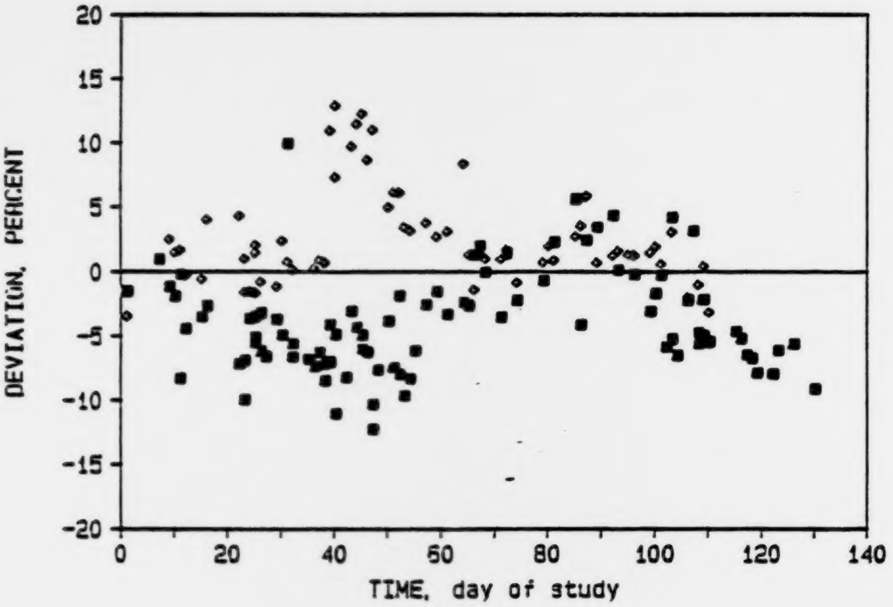

Figure 5. Deviation of measured NBS propane sample response from certified value ( ■ ) 1984 and (◇) 1985.

# APPENDIX C

## RESEARCH PROTOCOL METHOD FOR ANALYSIS OF $C_2$ HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

ASRL-ACPD-RPM 001 September 1986

# RESEARCH PROTOCOL METHOD FOR ANALYSIS OF C2 HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

Approvals

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Nov. 26, 1986
Date

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Jan. 9, 1987
Date

# DISCLAIMER

The Research Protocol/Method (RPM) described herein should not be interpreted as a generally accepted standard or equivalent method or procedure. This RPM was developed for use within the Atmospheric Sciences Research Laboratory of EPA and may not be applicable to the needs of other organizations.

# RESEARCH PROTOCOL METHOD FOR ANALYSIS OF C2 HYDROCARBONS IN AMBIENT AIR BY GAS CHROMATOGRAPHY WITH CRYOGENIC CONCENTRATION

## 1.0 PROCEDURAL

### 1.1 Scope and Application

This method is intended for analysis of C2 hydrocarbons (acetylene, ethylene, and ethane) in ambient air. The method's minimum quantification limit is 0.12 ppb carbon (0.06 ppb for C2 hydrocarbons); the method's minimum detection limit is 0.04 ppb carbon (0.02 ppb for C2 hydrocarbons).

### 1.2 Summary of Method

A known volume of sample is passed through a trap cooled with liquid oxygen or liquid argon. This traps out C2 and heavier hydrocarbons (without trapping methane). The trap is warmed to room temperature, which causes the injection of the trap contents into a gas chromatograph for separation of the C2 hydrocarbons. The resultant peaks are detected by a flame-ionization detector (FID) and quantified by an electronic integrator.

### 1.3 Definitions

This RPM uses no definitions that are unique to this document.

### 1.4 Interferences

Any compound that elutes with the same retention time as any of the C2 hydrocarbons or of the calibration reference (propane) will interfere.

## 1.5 Personnel Requirements

The researcher using this procedure is expected to be familiar with gas chromatographic practices and procedures.

## 1.6 Facilities Requirements

No special laboratory facilities are required.

## 1.7 Safety Requirements

### 1.7.1 Compressed Gases

See pages F14 through F18 of the EPA/RTP Safety Manual (ref. 1) for precautions.

### 1.7.1.1 Hydrogen

Hydrogen gas cylinders (used for FID fuel) are not permitted in the RTP Tech Center. Hydrogen cylinders and their regulators must be secured outside the building, and a pressure line run into the laboratory.

### 1.7.2 Vacuum Systems

See page G9 of the EPA/RTP Safety Manual (reference 1) for precautions.

### 1.7.3 Heated Surfaces

The GC injection ports, column, column oven, and detectors are maintained at temperatures high enough to cause burns. The researcher should exercise caution to avoid contact with these surfaces.

### 1.7.4 Cryogenic Liquids

See pages F18 through F20 of the EPA/RTP Safety Manual (ref. 1) for precautions.

### 1.7.4.1 Liquid Oxygen (if used)

WARNING - Strong oxidant. Vigorously promotes combustion. Avoid contact with all flammable materials. Containers, lines, valves, and vents must be free of oil and grease.

WARNING - Cryogenic fluid. May cause severe frostbite. Wear eye and hand protection.

### 1.7.4.2 Liquid Nitrogen and Liquid Argon (if used)

WARNING - Cryogenic fluid. May cause severe frostbite. Wear eye and hand protection. Use with adequate room ventilation. Keep contact with air to a minimum to avoid buildup of liquid oxygen (see above).

## 1.8 Apparatus

### 1.8.1 Gas Chromatograph

Gas Chromatograph with temperature-programmed oven, flame ionization detector (FID), and electronic integrator.

### 1.8.2 Inlet System (Figure 1)

The inlet system is illustrated in Figure 1. The automatic six-port sampling valves (V4 and V5) are located on an aluminum block which is temperature-regulated. All other valves are at ambient temperature.

#### 1.8.2.1 Trap

The sampling trap is made of clean 3.2 mm (1/8 in) OD stainless steel tubing, 26 cm in length, which is bent into a U-shape approximately 12 cm from each end so that the U is approximately 2.2 cm in width. The entire length of the trap is filled with 10 percent Carbowax 20 M TPA on 80/100 mesh Chromosorb W-AW. Silanized glass wool is added as a plug to the last cm of both ends. Swagelok (TM) fittings are added to each end for connections.

#### 1.8.2.2 Mass Flow Meter

A thermal conductivity mass flow meter (M1) (TYLAN Corp model FM 360, 0 to 500 standard cm3/min or equivalent, with readout box) is used to measure the flow into the cryogenic trap.

#### 1.8.2.3 Pressure Gauge

A precision Bourdon gauge (P1), range 0 to 200 Torr, is used. A gauge with a range of 0 to 400 Torr is also acceptable.

### 1.8.3 Gas Chromatograph Column

Type: packed column. Diameter: 1/8-inch OD stainless steel tubing. Length: 6 feet. Support: 60/80 mesh silica gel grade 58 (Grace Laboratories; this item is no longer commercially available). Liquid Phase: none.

### 1.8.4 Vacuum Pump

An oil-less diaphragm pump (such as Thomas model 2106CA13-515-2) is used to evacuate the inlet system.

CAUTION: Due to the possibility of contamination, oil-sealed vacuum pumps should not be used.

### 1.8.5 Tubing and Connectors

- All tubing is stainless steel.
- All connections are stainless steel compression tube fittings (Swagelok or equivalent).

### 1.8.6 Regulators

Carrier gas, hydrogen, and air delivery pressures are controlled by two-stage regulators mounted at the tank.

CAUTION: Due to the possibility of contamination by organic materials, only regulators with stainless-steel diaphragms should be used.

### 1.9 Reagents/Materials

1.9.1 Helium Carrier Gas: High purity (greater than 99.995 percent pure).

### 1.9.2 Detector Air

Linde zero grade (Total hydrocarbons <1 ppm, $H_2O$ <3ppm) or equivalent.

1.9.3 Detector Hydrogen

Prepurified grade 99.99 percent pure or equivalent. WARNING - Fire hazard. See safety precautions.

1.9.4 Liquid Nitrogen (for He purification)

WARNING - Cryogenic liquid - see safety precautions.

1.9.5 Liquid Oxygen (for trap cooling)

WARNING - Strong oxidant - see safety precautions. WARNING - Cryogenic liquid - see safety precautions.

1.9.6 Liquid Argon (for trap cooling)

WARNING - Cryogenic liquid - see safety precautions.

Liquid argon may be used instead of liquid oxygen for trap cooling. Although liquid argon is more expensive, it is inert, and its use eliminates the oxidant hazard associated with liquid oxygen.

1.9.7 Propane in Air (for calibration)

National Bureau of Standards (NBS) Standard Reference Material (SRM) 1665, 3 ppm (nominal) propane in air. (See Section 2.2.)

1.9.8 Instrument Air Vacuum

The six-port gas sampling valves require clean filtered air at 350 kPa (35 psig) and vacuum at approximately 20 in Hg (500 Torr) for operation. These are obtained from the building (RTP Tech Center) supplies.

## 1.10 Sample/Sampling Procedure

This RPM is limited to the laboratory analysis. Field sampling procedure is covered separately. (See reference 2.)

## 1.11 Calibration and Standardization

### 1.11.1 Determination of Retention Times

A propane in air sample should be analyzed. Using the column and temperatures specified in this document, adjust the carrier gas flow rate such that the propane peak elutes at 1.47 min (1 min 28 sec) following injection. Other C2-C4 compounds should elute as follows:

| Compound | Approximate Elution Time (min) |
|---|---|
| Ethane | 0.89 |
| Ethylene (ethene) | 1.12 |
| Acetylene (ethyne) | 2.18 |
| Isobutane (2-methylpropane) | 2.59 |
| n-Butane | 2.86 |

The actual elution times should be determined by preparing and analyzing known samples of each compound (ethane, ethylene, and acetylene).

### 1.11.2 Calibration

The response of the FID is linear with respect to the number of carbon atoms present in the detected compound (reference 2). Thus, it is convenient to measure concentration (conc.) in terms of parts-per-billion-carbon (ppbC) where

Conc., ppbC = (number of carbon atoms in compound)(Conc., ppb).

For a fixed sample volume, the concentration is proportional to the area under the chromatographic peak:

$$\text{Conc., ppbC} = (k)(\text{Area})$$

where: Area is in integrator counts and k is an experimentally determined calibration constant (ppmC/count). The same value of k is used for all compounds.

The calibration constant k is determined by analysis of an NBS SRM propane in air standard (see section 1.9.7). Three to five determinations are made and the median value taken. The value of k is then given by

$$k(\text{ppbC/count}) = \frac{3(\text{Conc. of NBS Standard Propane, ppm})(1000\ \text{ppb/ppm})}{\text{Average Area Count}}$$

## 1.12 Analysis Procedures

The analysis procedure is divided into two stages: preparation and sample concentration and injection.

### 1.12.1 Preparation

A. Adjustment of Flow Rates

1) Turn off the FID and FID heater - allow to cool to room temperature.
2) Attach the detector output (using the FID flow measuring insert, as discussed in the instrument instruction manual) to the soap film flow meter.
3) Set the carrier gas pressure to 400 kPa (58 psi). Adjust the carrier gas flow rate to 30 $cm^3$/min.
4) Set the hydrogen pressure to 250 kPa (35 psi).
WARNING - Hydrogen delivery pressure should be less than detector air pressure.

   Adjust the hydrogen flow to 28-30 $cm^3$/min.

5) Set the detector air pressure to 300 k Pa (45 psi). Adjust the detector flow to 430 $cm^3$/min ± 10 $cm^3$/min.

6) Set auxiliary helium flow (Figures 1, 2, 3) to approximately 30 $cm^3$/min.

NOTE: The above flow rates were optimized for the given column on an HP 5880A gas chromatograph with FID. If another gas chromatograph is used, adjust the flow rates to obtain maximum sensitivity according to the instructions for that instrument.

B. Set Up Detector

With the flow rates adjusted as in Step A, remove the FID flow measuring insert from the FID chimney and set the detector temperature to 250°C. Light detector with ignitor.

C. System Temperatures

Detector = 250°C.

Initial Oven Temperature = 45°C.

Oven Temperature Programming Rate = 8°C/min (temperature programming started at time of injection - heating stopped at end of run - approximately 4 min.)

Six-Port Valve Temperature = 60°C.

### 1.12.2 Sample Concentration and Injection

Preconcentration and injection of the sample is carried out as follows. Initial conditions are these: V2 is closed, vacuum pump is on, valves V3 and V6 are closed, gas sampling valves V4 and V5 are in the off position (Figure 1). Attach the canister to be analyzed to the inlet line. Open valves V3 and V6 to evacuate the system. When the vacuum gauge (P1) reaches 50 Torr or below, close valve V6. The system should remain at or very near 50 Torr. A rising pressure indicates a leak in the system.

The trap is immersed in a Dewar flask containing liquid oxygen sufficient to cover the "U" but placed so that the compression fittings are neither inside the flask nor touching the liquid oxygen. If the fittings are inside the flask, sample will condense in the fitting instead of on the trap. This could result in either plugged carrier gas flow due to ice forming in the fitting and/or improper sample plug injection of the trapped hydrocarbons. Open valve V2 and adjust valve V1 to a flow of 100 $cm^3$/min, using mass flowmeter M1. When P1 is at 60 torr, actuate valve V4 (see Figure 2). Adjust flow rate back to 100 $cm^3$/min, using valve V1, if necessary. When P1 reads 140 Torr, inject sample onto column by actuating valve V5, removing liquid oxygen flask from trap, and pressing start button on electronic integrator (and GC, if needed); deactuate valve V4 (see Figure 3).

> CAUTION: It is extremely important that V5 be actuated before removing the liquid oxygen flask from the trap. Failure to observe this sequence will permit light hydrocarbons to be vented before injection.

At a time of 1 minute into the run, deactuate valve V5 so that the auxiliary helium flushes water and higher molecular weight hydrocarbons (> C5) from the trap to the atmosphere instead of onto the GC column. The higher molecular weight hydrocarbons, if not removed from the trap, can cause large excursions of the baseline, and water can cause the trap to become plugged. Stop the run manually or automatically after the butane peak elutes, about 4 minutes after the start.

Identify sample peaks by their retention times, as determined in Section 1.11.1. An example chromatograph with integrator printout is shown as Figure 4.

## 1.13 Calculations

Using the calibration constant (k) determined in section 1.11.2, the concentration of each compound (peak) can be calculated as follows:

$$\text{Concentration, ppbC} = (k)(\text{Area})$$

where the area is in integrator counts. Most integrators may be programmed to perform this calculation and present results directly in units of concentration.

## 1.14 Data Reporting

The concentration of each C2 hydrocarbon should be reported. The integrator chart of sample and calibration standard should be saved as a record of analysis.

## 1.15 Corrective Action

Corrective action should be taken whenever any of the following are observed:

- Variation of retention times.
- Poor or ill-shaped peaks.
- Fused or combined peaks.
- Presence of peaks which elute with the compounds of interest (C2 hydrocarbons and propane).
- Integrator failure to correctly recognize start time, stop time, or to correctly determine baseline and peak areas.
- Variation of response, as shown by more than a ± 15 percent change in calibration constant.

Determination of the proper corrective action requires a knowledge of chromatographic principles and instrumentation beyond the scope of this document.

## 1.16 Method Precision and Accuracy

Based on repeated analysis of NBS SRM propane in air standards over a one year period, the variation of the calibration constant (k) was found to be within ± 15 percent of the initial value. Replicate analysis of ambient air samples for total nonmethane organic compounds (NMOC) using a similar technique (reference 2) showed an analytical precision of approximately ± 12 percent. The precision for C2 hydrocarbons should be similar. Due to the lack of suitable NBS standards, the accuracy for analysis of C2 hydrocarbons cannot be directly determined using the propane standard.

## 2.0 QUALITY CONTROL

### 2.1 QC Checks and Frequency

One sample of NBS SRM propane in air is analyzed each day that a sample is run. The NBS SRM certification must be current.

### 2.2 Control Charts

The percent deviation of the daily NBS SRM propane sample (Section 1.9.7) from the NBS-certified value is plotted on a control chart (Figure 5). This deviation should not exceed ± 15 percent. If this occurs, the system should be checked for proper operation. If the condition persists, the detector should be cleaned and checked for correct operation. If the response remains outside the control limit (± 15 percent), then the instrument should be recalibrated.

## 2.3 Calibration and Maintenance of Components

Components such as the pressure gauge, the mass flow controller, and the soap bubble flowmeter should have a manufacturer's certificate of calibration at the time of purchase. The performance of these components is periodically checked and maintenance or replacement performed. Chromatographic columns and sample traps are replaced when, in the analyst's opinion, they have degraded.

TABLE 1. LEGEND FOR FIGURES 1, 2, AND 3

$V_1$ = stainless steel needle valve

$V_2$, $V_3$, and $V_6$ = shut-off valves (a)

$V_4$ and $V_5$ = 6-port electrically actuated gas sampling valve (attached to HP 5880A Gas Chromatograph) (b)

$M_1$ = 0 to 500 $cm^3$/min mass flow meter

$P_1$ = 0 to 200 Torr Wallace and Tierman Bourdon Gauge

---

(a) V2 is a stainless steel bellows valve on the canister. V3 and V6 are toggle valves; they may be stainless steel or brass.

(b) The gas sampling valve used should be capable of holding a vacuum down to 10 Torr for proper operation.

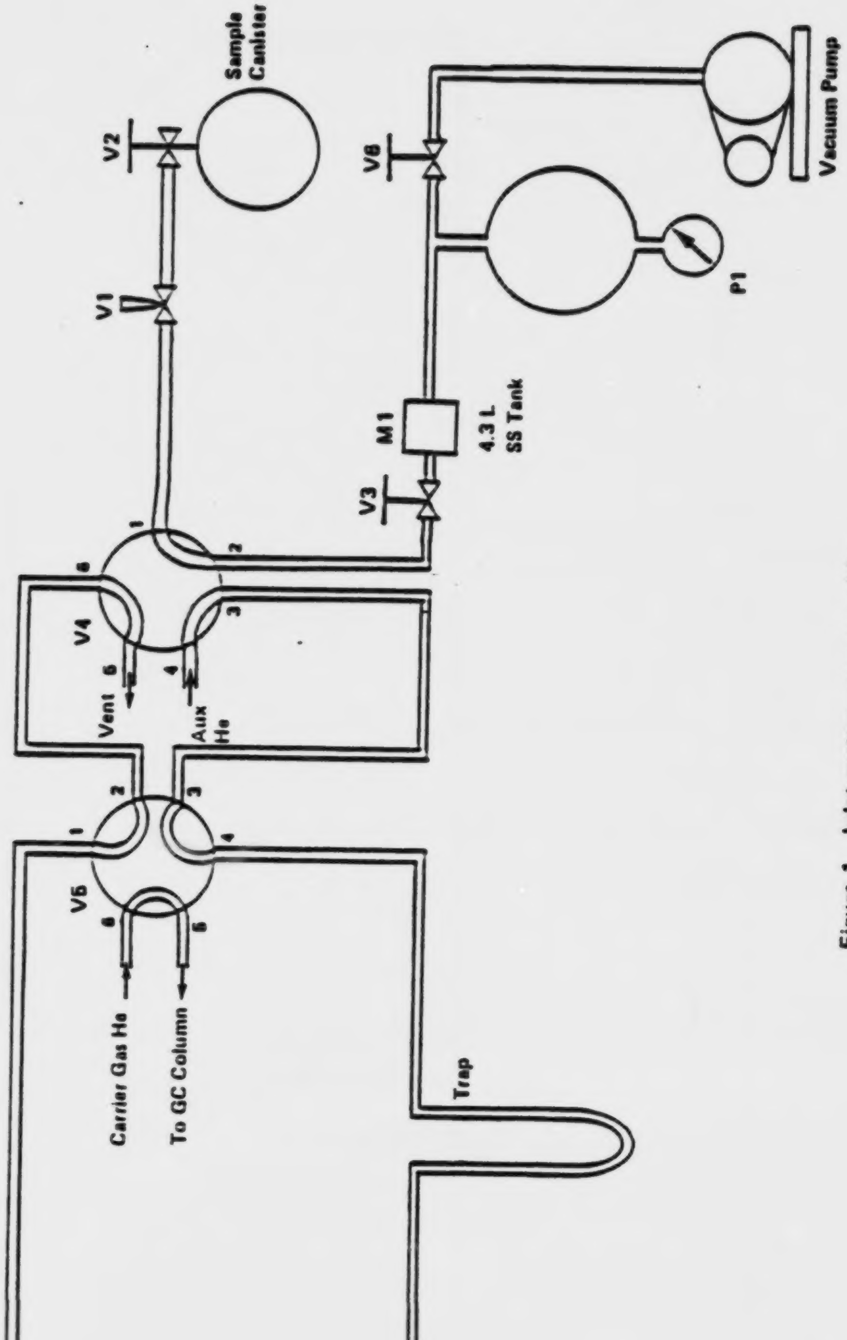

Sample Canister
V2
V1
V6
Vacuum Pump
P1
M1
4.3 L SS Tank
V3
1
2
3
4
5
6
V4
Vent
Aux He
1
2
3
4
5
6
V5
Carrier Gas He
To GC Column
Trap

Figure 1. Inlet system—purge position.

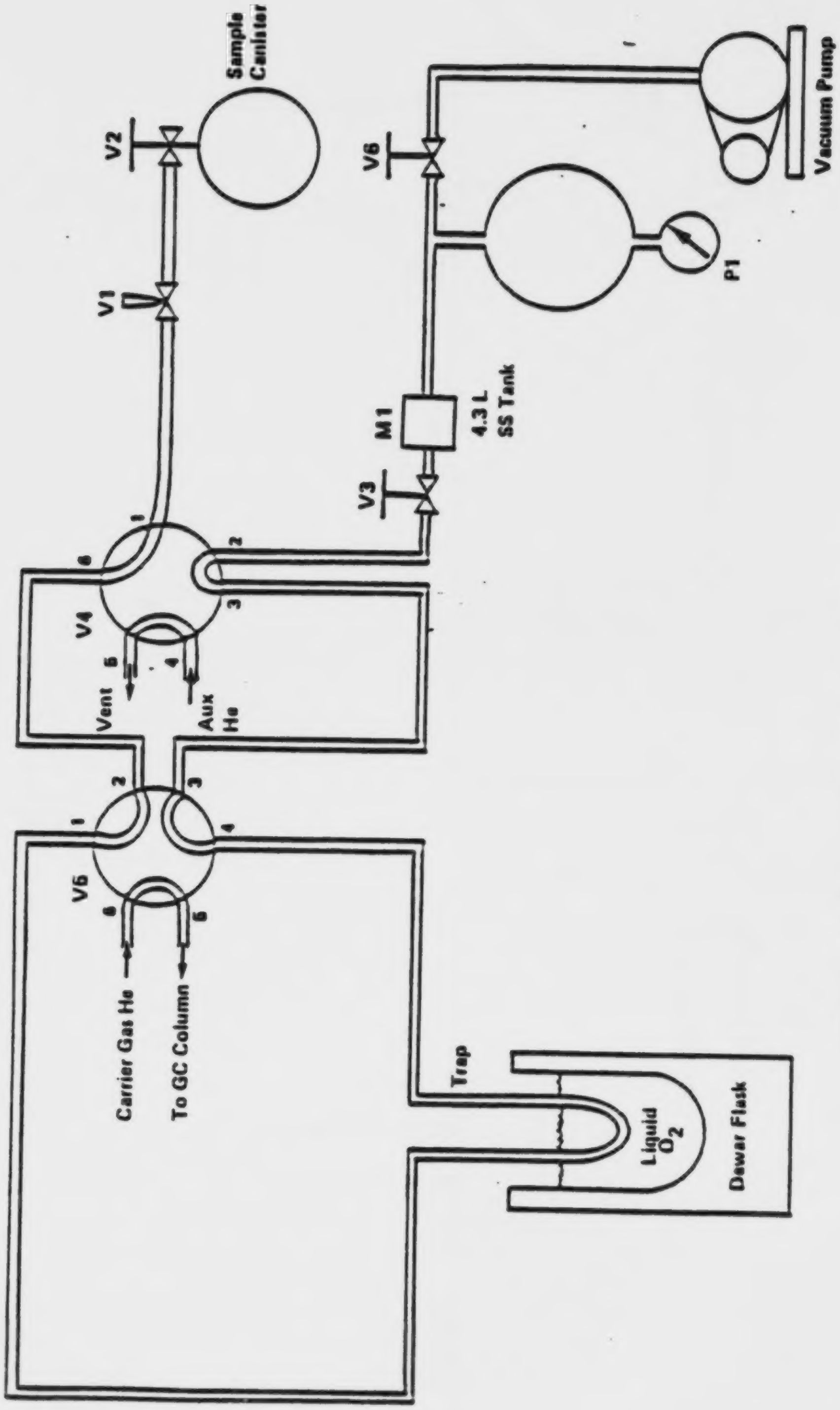

Sample Canister
V2
V1
V6
Vacuum Pump
P1
M1
4.3 L
SS Tank
V3
V4
1
2
3
4
5
6
Vent
Aux He
V5
1
2
3
4
5
6
Carrier Gas He
To GC Column
Trap
Liquid
$O_2$
Dewar Flask

Figure 2. Inlet system—sample trapping position.

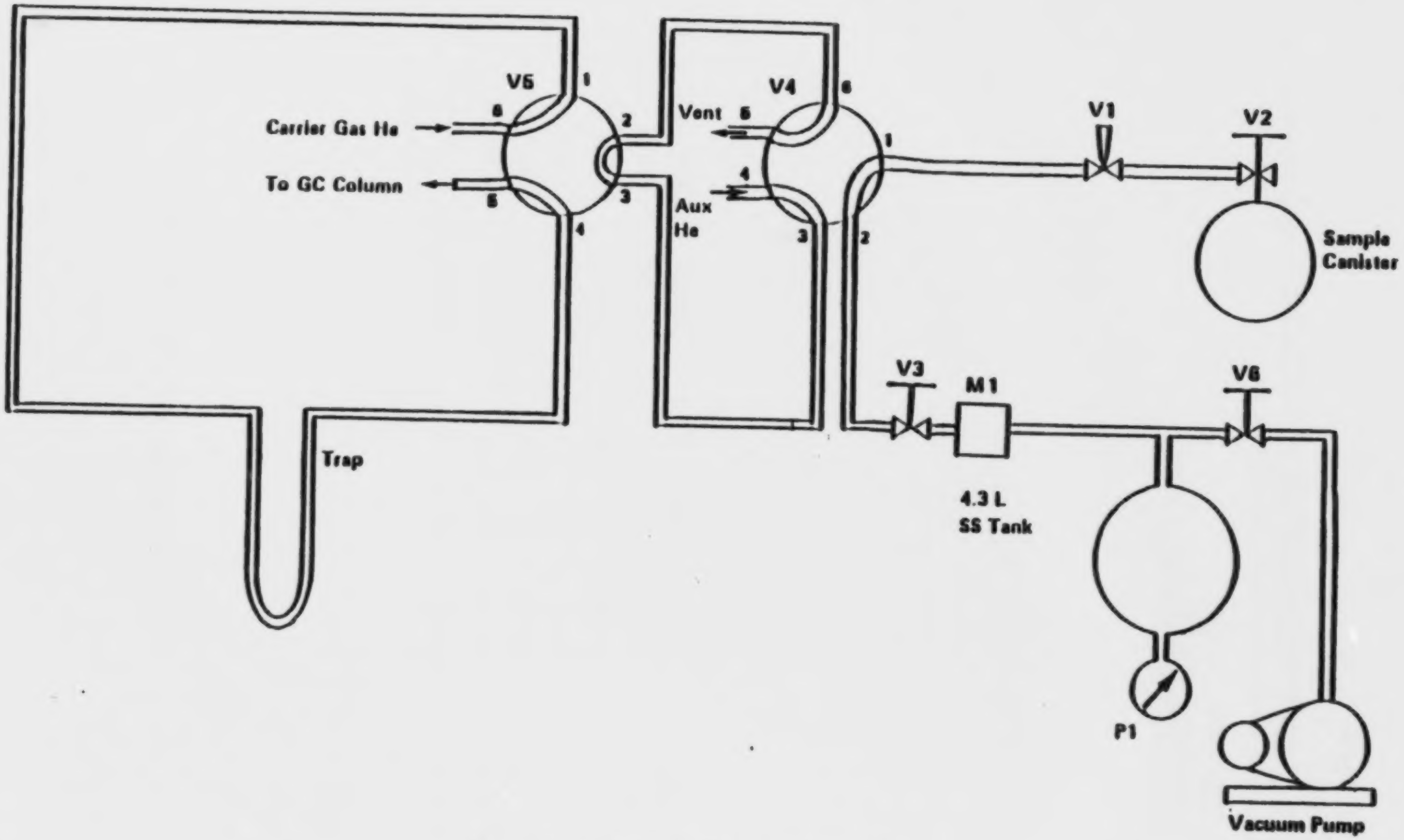
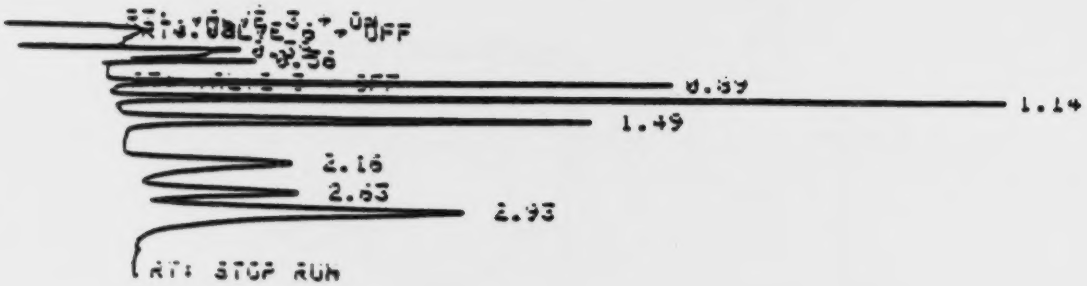

V5
1
2
3
4
5
6
Carrier Gas He
To GC Column
V4
Vent
Aux He
V1
V2
Sample Canister
V3
M1
V6
4.3 L SS Tank
P1
Trap
Vacuum Pump

Figure 3. Inlet system–injection position.



| RT | Area | | Type | Cal | Amount | Name |
|---|---|---|---|---|---|---|
| 0.89 | 36.80 | + | BP | 1 | 9.050 | Ethane |
| 1.14 | 66.48 | + | PV | 2 | 16.836 | Ethylene |
| 1.49 | 74.52 | + | VB | 3 | 16.326 | Propane |
| 2.18 | 56.44 | + | BV | 4 | 14.371 | Acetylene |
| 2.83 | 44.75 | + | VV | 5 | 11.004 | I-Butane |
| 2.93 | 121.75 | + | VB | 6 | 29.938 | N-Butane + Propylene |

Figure 4. Sample chromatograph and integrator printout.

## 3.0 REFERENCES

1. EPA/RTP Safety Manual, Support Services Office, Environmental Research Center, Research Triangle Park, NC 27711.

2. Dietz, W. A., Journal of Gas Chromatography, Vol. 5, pp. 68-71 (1967).

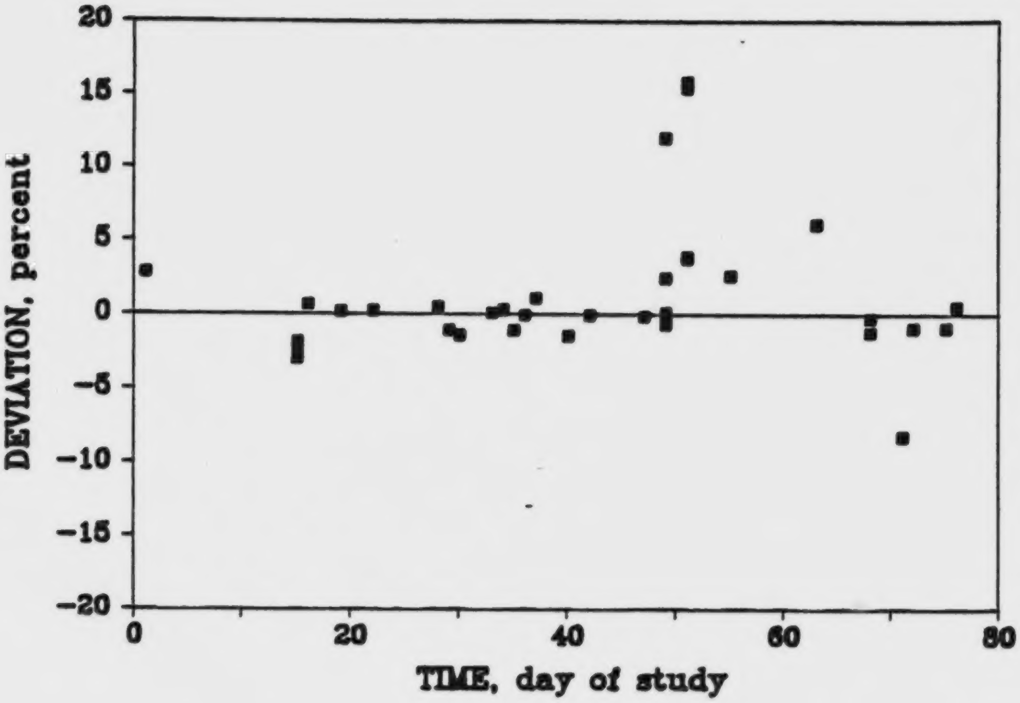


Figure 5. Deviation of measured NBS propane sample response from certified value.

# APPENDIX D

# INLAB DATA MANAGEMENT SYSTEM

## INLAB DMS

## USER'S MANUAL

This appendix is a user's guide that was submitted as a separate document in 1986. We have removed the page numbers in order to avoid confusion with the main body of this report and to conform with the other appendices. The material of the guide is still organized as shown in its Table of Contents, but the page numbers listed there are no longer relevant.

# INLAB DATA MANAGEMENT SYSTEM
# INLAB DMS
# USER'S MANUAL

EPA Contract No. 68-01-6849

Delivery Order No. 6849-022

Prepared for:

U.S. Environmental Protection Agency
Office of Information
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Research Triangle Park, NC 27711

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# I. INTRODUCTION

The InLaboratory Data Management System (InLab) is a computerized tool that helps laboratory personnel to organize experimental data. The system operates on the IBM PC/XT/AT (or compatibles) using DOS 3.1; and requires 512K memory and access to a hard disk.

InLab does the following:

- Tracks information on samples (of water, air, or chemicals, for example) from the sample's registration (**login**) to the sample's use in experiments, to the generation of results;
- Checks the validity of some input;
- Sets up a file system to handle results data;
- Accepts data directly from laboratory instruments, thereby increasing the speed and efficiency of laboratory analyses and reducing the effect of input errors;
- Generates reports on sample status, project status, experiment results, and system use;
- Reformats data for telecommunication or for use in other programs (such as statistical-analysis software); and
- Protects data from interference by unauthorized users.

InLab currently supports two experimental techniques:

- Gas chromatographic analyses performed on the Hewlett Packard 5880A gas chromatograph (the HP-5880); and
- Bacterial mutagenesis studies that use the Coulter Colony Counter.

The system does the following in relation to chromatographic applications:

- Makes the computer's keyboard into an extension of the HP-5880 so the user can type commands and receive data as if he were at the chromatograph's console;

- Retrieves analytical-results data and HP-5880 operational parameters (setup commands and calibration data) for storage and reporting;
- Allows the user to edit operational parameters for subsequent **download** (InLab-to-chromatograph transfer);
- Transfers batched data from the chromatograph without the user's ongoing supervision;
- Sets up a file system to handle results data;
- Generates detailed and summary reports on results, including results aggregated for component classes; and
- Provides a mechanism by which the user can decide whether or not to accept particular results data in certain summary reports.

The system does the following in relation to microbiological applications:

- Elicits experimental-protocol data (including the substance being examined, the bacterial strains, the presence or absence of activation factor, and the number and type of controls);
- Sets up a file system to handle results data;
- Accepts numeric plate counts directly from a Coulter Colony Counter;
- Formats data for later transmission to the EPA's National Computer Center, which then can generate statistical analyses and reports; and
- Generates reports on experiments' progress and results.

InLab is easily extensible: the system's architecture is such that additional applications can be supported once the developers have added code that makes possible the input of data from additional instruments.

## 1. INLAB'S COMPONENTS

InLab comprises four functional components: **sample management, system management, administration management,** and **analysis.**

- **Sample management.** The user logs in samples, develops a data base of information on them, maintains records of their changing status; generates reports based on these data; and reformats data for use in other software packages.

- **System management.** The manager sets up a security scheme (protecting the system against unauthorized use and specifying whether to record the users' activities); accesses information on the system; and alters system characteristics.

- **Administration management.** The user defines the abstract structure by which InLab will organize experimental data.

- **Analysis.** The user enters information on sample results and generates reports based on that data.

Appendix A reveals the sub-components of each InLab component. Section III, Part 1 details how InLab's menu gives the user access to each part of the system.

The following sections describe the first three components; Section IV, Part 4 gives further information on the analysis component.

> Note: InLab, which is an unusually flexible data-processing tool, requires the user to define various characteristics of the data to be processed. The following discussion of the sample-management component illustrates both the system's general flexibility and the user's general obligations.

## 1.1 Sample Management

### Sample Login

At the time of sample login, the user associates each sample with an ID, an alphanumeric code of up to eight characters. If the user so desires, InLab instead can assign a computer-generated sample ID. The system manager, working in the system-management component, will have specified whether the user or the system will assign the ID.

IDs assigned by the system are eight-digit numbers (in a character field), where the IDs begin with the last two digits of the current year. InLab assigns those numbers in sequence, in increasing order; the manager dictates what the first number will be.

As is usually true in InLab, the user determines the meanings associated with a particular data format. One user's sample-ID format may reflect the time of sample login, for example (perhaps the ID would be eight numbers denoting the year, month, day, and hour of login); or may reflect the source of a given sample, the group slated to do the analysis, or some combination of variables. One implication of InLab's flexibility is that a laboratory can use formatting conventions that are similar (often identical) to those already in place.

> Note: Using manually specified sample IDs is desirable in the chromatography application, where the sample ID should be identical to the name used to store, on the chromatograph's tape unit, a sample's chromatographic data; using manually specified IDs is also desirable in the microbiology application if the sample ID conventions specified by EPA's Health Effects Research Laboratory are relevant.

Section IV, Part 1.1 reveals further information on sample login.

### Sample Data Base

The user enters or revises a variety of data on each sample, but InLab is flexible to the extent of allowing the user to define the meaning or implication of much of that data.

Consider the field **sample type**. Does it refer to a level of purity, a chemical family, or some other variable? The user specifies the meaning of the field or specifies that the field is to be left blank.

Throughout InLab, the user must develop correspondences between character strings and day-to-day meanings. In relation to **sample type**, for example, the input 01 might refer to solids; the input 02, to liquids; and so forth. Again, InLab can accept most pre-existing conventions.

Section IV, Part 1.3 reveals further information on sample data base.

### Sample Statuses

When the user logs in a sample, he associates one or more analytic tests with it. (Part 1.3, below, discusses tests in detail.) InLab assigns a status to each sample/test combination and revises the sample/test status as the user enters information on experimental results. The possible statuses and their associated meanings are as follows:

- **Logged.** The user has entered information on the sample/test combination.
- **Pending.** In microbiological applications, the user has entered some but not all of the results associated with the sample/test. In chromatographic, HP-5880 applications, the result (a

"numeric-report file" in Hewlett Packard terminology) has arrived (been **uploaded**) to the computer from the HP-5880 in a preliminary format, allowing the user to generate detailed reports on the sample's apparent chemical composition; the user has yet to accept the data.

- **Complete.** In microbiological applications, the user has entered all of the results associated with the sample/test combination. In chromatographic applications, the user has accepted the preliminary results and has posted them to the main InLab data bases.
- **Deleted.** The user has deleted all data on the sample/test combination.

## Sample-management Reports

The sample-status report (shown in Appendix B, Section 1a) is one of six reports available to the user working in the sample-management component. That report lists not only sample/test combinations and their associated statuses, but also a disposition for each sample/test combination. The user assigns one of the following dispositions (the meanings of which are defined by the user):

- **Normal**
- **Cancel**
- **Hold**
- **Approved**
- **Release**
- **Other**

The user who assigns "other" may enter any phrase (such as "radioact") of up to 8 characters. The default disposition of all samples (that is, the disposition assignment that will appear in the absence of user input) is "normal."

Appendix B, Sections 1b-1f displays the other five sample-management reports:

- The **urgent-sample report** lists all samples that are within 5 days from the date at which their testing was to have been completed.

- The **critical-sample report** lists all samples that are within 5 days from the end of their shelf life.
- The **sample-worklist report** lists all samples that have the status "logged" and groups samples by work group. (The user defines work group in the administration-management component, test definition.)
- The **sample-results summary report** compares experimental results with the expected upper and lower limits, if any, and displays a quality-control marker such that "+" means the result is greater than the upper limit, "-" means the result is less than the lower limit, and a blank means that the result is within the limits.
- The **sample-location report** lists the location of each logged sample by the location specified at login. The report displays one page per location to aid in identifying which samples are in a particular place (a freezer, for example).

### Data Export

The user can export results data to other programs. This ability is necessary for these applications, among others:

- Generating user-tailored reports (with dBASE III, for example);
- Analyzing data (with a statistical package like SAS); and
- Graphing data (with a package like Lotus 123).

The external programs often require that input data be in a specific format. The reformatting of that data occurs in the data-export part of InLab's sample-management component.

## 1.2 System Management

### Security

When InLab's **security** option is in effect, only users who have been given a user ID, password, and security level are able to access the system. The user's security level dictates which of InLab's components are available to a particular user.

The system manager decides whether or not to use the security option and, if the decision is "yes," assigns one of three security levels to each user. Exhibit I-1 details the levels.

EXHIBIT I-1

SECURITY LEVELS

| Level | Meaning |
|---|---|
| 0-4, inclusive | Permits access only to InLab's analysis component |
| 5-9, inclusive | Permits access to all InLab components except system management |
| 10 or greater | Permits access to all InLab components and allows the user to change the user-defined menu (as discussed in Section III, Part 2.) |

A user's security level also may determine whether he has access to particular entries on the user-defined menu. (Section III, Part 2 gives further details.)

In relation to security, the system manager specifies T (for "true") or F (for "false") in the system-options part of the system-management component; he assigns security levels in the security part of the systems-management component.

Inlab generates two security-related reports (as shown in Appendix B, Sections 2a-b):

- The **security report** is a list of users who have received IDs, passwords, and security levels. The list includes the following information for each person: the organizational affiliation; the date and time of last recorded entrance into the system; the total number of recorded entrances; and the current security level. (InLab does not record user entrances when the security option is not active.) The manager can view or print the security report in the security part of the systems-management component.
- The **audit-trail report** is based on the **audit trail**, which is a tracking of system use. (The manager specifies, in the system-options part of the system-management component, whether or not to do an audit trail.) The report includes chronologically ordered data on users who entered InLab when both the security and

audit-trail options were active. The report provides the following information: the dates and times of each users' entrances into the system, the functions executed by the user, and the dates and times of login and logoff.

### Common-Data-Dictionary Reports

Users who intend to do custom programming will need detailed information on the system's data bases, files, and fields. Such information is available in the CDD (Common Data Dictionary) part of the system-management component. Three reports are available:

- The **map report** lists field names in alphabetical order and specifies the data bases in which those fields appear.
- The **fields report** lists field names in alphabetical order and specifies the following, along with an English-language description of the field: type, length, and number of places to the right of the decimal point.
- The **files report** lists field names in alphabetical order by database or file and specifies the following: type, length, and number of places to the right of the decimal point.

### User-Determinable Options

The manager working in the system-options part of the system-management component can change the answers to the following questions:

- On what disk do InLab's active files reside?
- Will InLab's security option be activated or not?
- If the security option is being activated, will InLab's audit-trail option be activated, too?
- Will InLab's automatic-sample-ID option be activated or not?
- If the automatic-sample-ID option is being activated, what will be the first sample ID?

## 1.3 Administration Management

The user's interaction with InLab is, in general terms, as follows: the user creates an abstract structure for organizing experimental data; InLab manipulates the data, generating reports in accordance with the user's structure.

The user creates the structure in the administration-management component, by defining **project** and **test**.

### Project

A **project** is a research effort in which scientists label and test samples and generate reports on the resultant data. The project manager may define the project as either

- o The whole of his staff's efforts; or
- o A subset of those efforts.

An important criterion for the user's project definition: **the data generated by a project should be closely related.** A manager who oversees the analysis of soil samples from a waste dump, on the one hand, and air samples from Antarctica, on the other, probably should tabulate the two sets of data separately. The following characteristics are among those that may be used to discriminate one project from another:

- o Substance being analyzed;
- o Source of sample;
- o Place of analysis;
- o Time period in which the analysis occurred; and
- o Person or group doing the analysis.

### Test

A **test** is another logical category whose application-specific meaning is defined by the user. InLab groups all experimental data into projects; the system further groups a given project's data into tests.

A test is usually an experimental action or series of actions that yield analytic results. The type of instrument being used is one of the test's characteristics. In the chromatographic application, for example, a test can be the HP-5880's analysis of a sample, and the user can apply that test to any or all samples.

In the microbiological application a test may be defined by any of several characteristics. A particular test may be defined as all Coulter-Colony-Counter experiments whose data are in InLab, all such experiments being conducted by a particular investigator, all such experiments that occur within a particular timeframe, and so forth; as was the case for "project," the user defines "test" according to his reporting requirements. Note that in the microbiology application, InLab requires the user to specify experimental parameters such as substance being investigated, dose levels, and number of replicate plates. A test may be defined as a protocol that holds one of those parameters constant. Again, a test would be a class of experiments: those that use a particular chemical or that use particular dose levels, for example.

Defining a test is in any case a method for protecting the integrity of data, in that the user specifies which tests can be performed in each project, and InLab disallows the entry of data from tests that were not specified in the project.

## Reports

Two reports (shown in Appendix B, Sections 3a-b) are available in the administration-management component:

- The **project-status report** lists, for each project, the submitter, the due date, the number of samples logged, the number of samples with the status **pending**, the number of samples with the status **complete**, and the identifiers of the tests used.
- The **test-definition report** lists, for each test, the time required, the cost of performing the test, the group performing the test, the application (now only chromatography or microbiology), and the instrument being supported (now only the HP-5880 or the Coulter Colony Counter).

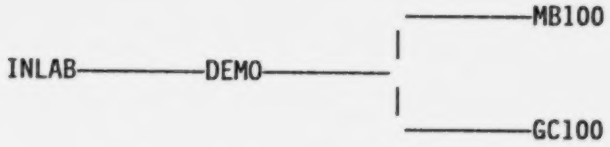
## 2. INLAB'S DIRECTORY STRUCTURE

InLab resides in the subdirectory /INLAB, which includes the files common to the system. That subdirectory includes subdirectories, each named for a project. In each project subdirectory are files that hold status information for the samples logged in that project.

A project subdirectory in turn includes subdirectories, each named for a test defined in that project. A test subdirectory contains only a series of result files, each containing the results associated with a particular sample/test combination. (In the chromatography application, an additional results file is the basis for the preliminary reports described in Section IV, Part 4.1.)

## II. GETTING STARTED

The files for InLab are on three double-sided, double-density diskettes. To install InLab, change the default drive to A: and insert Disk #1. The system requires 1 megabyte of memory and creates the following directory structure if both the system and the user-generated data reside on the same drive:



If the drive that contains the system is different from the drive that contains the user-generated data, Inlab will create the above directory structure on the data drive and will create the subdirectory \INLAB on the system drive. All files common to the system will reside on the \INLAB subdirectory on the system drive. Data files will reside on the \INLAB\DEMO sub-subdirectory on the data drive.

To install InLab, type INSTALL at the A>. After the program loads, enter the system- and data-drive letters corresponding to where you want to install InLab's system and data files. After verifying that the drive letters are correct, the above directory structure will be created and InLab system files will be installed on the appropriate subdirectory. When that process is complete, insert Disk #2 in drive A: and press any key, thereby installing the remaining program files. After that process is complete, insert Disk #3 in drive A: and press any key, thereby installing the (developer-generated) data files on the \INLAB\DEMO subdirectory. A message will appear at the bottom of the screen if the installation is successful.

For proper execution of InLab, you must set the CONFIG.SYS file to FILES=25; BUFFERS=20; and FCBS=16,8.

Now change the default drive to the system drive. Change the directory to \INLAB (cd \INLAB) and type INLAB. Security is an InLab option and is enabled. The initial screen (as shown in Exhibit II-1) will ask for a USER ID and PASSWORD. Three user IDs are defined in the system; their passwords and security levels are as follows:

| USER ID | PASSWORD | SECURITY LEVEL |
|---|---|---|
| SYSTEM | MANAGER | 10 |
| SAMPLE | CLERK | 5 |
| LAB | TECH | 0 |

Initially log onto the system as SYSTEM, with the password MANAGER. The initial project is DEMO. The security levels determine what the user can do in the system. Access to InLab's system-management component requires a security level of 10 (the highest clearance); access to the sample-management and administration-management components requires a level of 5; and access to the analysis component requires a level of 0. (Section I, Part 1.2 describes the security option in more detail.)

The tests already defined are **GC100**, a chromatography test, and **MB100**, a microbiology test.

You can explore the system in relation to the project **DEMO** and the initially provided tests. The user's manual should provide any information not provided by onscreen messages.

> Note: InLab simulates all communications functions in the chromatography application of project **DEMO**. You need no chromatograph to try out those functions.
>
> Simulate the uploading of a **method**, supplied with the system, as if you were uploading that method from the Hewlett Packard 5880A gas chromatograph. Associate that method with the test name **GC100**. (Section IV, Part 4.1 describes the chromatography application.)

When you are ready to enter usable data, do the following:

- Create test definitions in the administration-management component;
- Define a project using those test definitions; and
- Exit InLab and reenter the system, using the self-defined project name.

## EXHIBIT II-1

## USER LOGON SCREEN

```
 ------------------------------------------------------------------------------
|                                                                              |
|                   INLABORATORY DATA MANAGEMENT SYSTEM                        |
|                                                                              |
|                                InLab                                         |
|                                                                              |
|                             Version  1.00                                    |
|                                                                              |
|                             U.S. EPA OIRM                                    |
|                         Program Resources, Inc.                              |
|                        Contract 68-01-6849 (022)                             |
|                                                                              |
|                          September 23rd, 1986                                |
|                                                                              |
|                     ----------------------------------                       |
|                    | Enter User Name  :_____________   |                      |
|                    | Enter Password   :_____________   |                      |
|                    | Enter Project ID :_____________   |                      |
|                     ----------------------------------                       |
 ------------------------------------------------------------------------------
```

## 1. MULTI-LINK

InLab can support the entry of microbiology results under Multi-Link, a multitasking product of The Software Link. To operate under Multi-Link, where the system configuration includes one console and one or more supplementary terminals, you must dedicate each terminal so that the terminals will allow only the input of microbiology results. The batch file used to bring up a terminal must include the path to the Multi-Link subdirectory; the necessary statement is as follows:

```
PATH MULTI-LINK DRIVE:\MULTI-LINK SUBDIRECTORY
```

where MULTI-LINK DRIVE is the drive letter on which Multi-Link resides, and MULTI-LINK SUBDIRECTORY is the name of the subdirectory where Multi-Link resides.

The batch file also must include the following statement, which invokes InLab:

```
MLS INLAB TERMINAL ID,MICRORES
```

where TERMINAL ID is 0 for the main console, 1 for terminal 1, and so on.

An example of the AUTOEXEC.BAT file is as follows:

```
PATH C:\MLINK

SET COMSPEC = C:\COMMAND.COM

MLSLICE

MLINK /9,64/5,448,10,19200

MLSPOOL C:\SPOOLER\
```

An example of the AUTOEXE2.BAT file is as follows:

```
PATH C:\MLINK

CD\INLAB

MLS INLAB 2,MICRORES
```

You cannot exit to DOS from a terminal once you have completed entering microbiology results. Once you have completed the entry of results data, the InLab logon screen reappears.

## III. SYSTEMWIDE CONVENTIONS

Several aspects of InLab are relatively constant throughout the system.

### 1. INLAB MENU

The user often interacts with the InLab menu, a series of rows listing the available functions. Lower-level rows appear only when the user has selected an option from a higher-level row.

The user navigates among functions on a given row by manipulating the **Cursor Left** and **Cursor Right** keys to highlight one or another option. He selects the highlighted option by pressing the **Cursor Down** or **Enter** key. The user returns to the next higher-level row by pressing the **Cursor Up** key.

When the user is at any lowest-level row in the menu, he may assign a function key that, when pressed, will bring him directly to the function represented by the highlighted menu entry. The user can arrange, for example, to go, with one keystroke and from anywhere on the menu, to the critical-report part of the sample-management component.

The procedure is as follows: The user presses the F1 key while holding down the **Alt** key. In response to the message "press any function key F2-F10...," the user presses the function key that will hereafter be associated with the highlighted menu entry. If that function key is already assigned, InLab will elicit a decision as to whether the user will keep or change the assignment.

The user working at the menu can see the list of function-key assignments by pressing F1.

The user can return to the menu from any function by pressing the Esc key.

When a menu entry on a lower-level row is highlighted, pressing the Esc key returns the user to the top row. When an entry on the top row is highlighted, pressing the Esc key returns the user to the computer's operating system.

## 2. INLAB USER-DEFINED MENU

The user-defined menu allows the user to run programs from within InLab, thereby extending the capabilities of the system. Exhibit III-1 gives an example of such a menu.

Only the user with a security level of 10 or greater can modify the menu. Such a user (usually, the system manager) can do so by first using the F2-F5 keys, as specified on screen:

- o Pressing **F2** allows the user to add an item.
- o Pressing **F3** allows the user to delete an item.
- o Pressing **F4** allows the user to update an item.
- o Pressing **F5** allows the user to change the title of the menu itself.

When the manager wants to add or update an item, he must enter data in various fields. Exhibit III-2 shows the meaning associated with each. Exhibit III-3 displays the overlay that appears when the user decides to add an item.

For any user, pressing the **F10** key while holding down the **Alt** key reveals the user-defined menu as currently constituted.

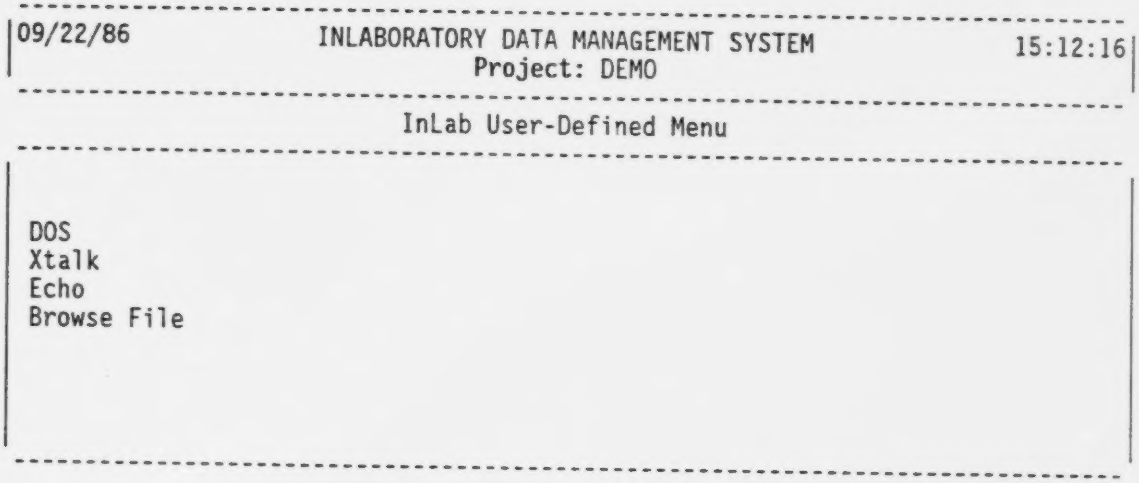
The user manipulates the **Cursor Up** and **Cursor Down** keys to highlight one or another menu item; pressing the **Enter** key selects the highlighted item. The user then usually goes to the program specified. (In some cases, he first must specify a file name or other parameter; see Exhibit III-2.)

After the user has run an external program, he returns to InLab by entering "EXIT" at the computer's operating system.

Pressing the **Esc** key from the user-defined menu returns the user to the part of InLab from which he came.

## EXHIBIT III-1

## EXAMPLE OF THE INLAB USER-DEFINED MENU



```
-------------------------------------------------------------------------------
|09/22/86            INLABORATORY DATA MANAGEMENT SYSTEM               15:12:16|
|                              Project: DEMO                                   |
-------------------------------------------------------------------------------
                          InLab User-Defined Menu
-------------------------------------------------------------------------------
|                                                                             |
|                                                                             |
| DOS                                                                         |
| Xtalk                                                                       |
| Echo                                                                        |
| Browse File                                                                 |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
-------------------------------------------------------------------------------
```

## EXHIBIT III-2

## FIELDS ON THE USER-DEFINED MENU, ENTRY-DEFINITION SCREEN

| Field Name | Meaning |
|---|---|
| Procedure Name * | Name used in DOS, dBASEIII, or Interpretive Basic to refer to the program being placed on the menu. If the procedure name is generally associated with a parameter (a file name, for example), the user adds a bracketed phrase like [ENTER FILE NAME] after the procedure name; when the user selects the menu item, InLab will display the phrase to elicit the parameter. |
| Procedure Type * | One of three codes: B for a routine in Inter et6ve Basic; C for a command in DOS (.EXE, .BAT, or .COM file); and D for a dBASEIII procedure |
| Security Level | The security level at which a user will have access to the program specified (see Section I, Part 1.2 for further information on security) |
| Menu Item* | The text that will appear on the menu |
| Procedure Description * | The text that will appear at the bottom of the menu when the item is highlighted |

* The user must assign a value to this field

## EXHIBIT III-3

## USER-DEFINED MENU, ADD-ITEM OVERLAY

```
 ------------------------------------------------------------------
|                                                                  |
|                            ADD ITEM                              |
|                                                                  |
|  Procedure Name to Execute:_______________________               |
|  Procedure Type:_____ Security Level:_____________               |
|  Menu Item:___________________                                   |
|  Procedure Description:____________________________              |
|                        ____________________________              |
|                        ____________________________              |
|                                                                  |
 ------------------------------------------------------------------
```

## 3. INPUT

In InLab, the pulsing of an onscreen cursor elicits input from the user, who types data and, to confirm decisions, presses the **Enter** key. The input appears in a **field**, a highlighted, rectangular, onscreen area whose length corresponds to the maximum number of characters allowed.

Fields in InLab are of several types. **Character fields** accept letters, numbers, and special characters; **date fields** require dates in the form mm/dd/yy; **logical fields** require an F (for false) or T (for true); and **numeric fields** require digits. Some fields are **required** (the user must supply the requested information), while others are **optional** (the user can leave them blank).

**Names** in InLab (project and test names, for example) go in character fields. The system does not allow embedded spaces in a name, does not remember spaces at the end of the name, and does not accept special characters other than the underline symbol. A field's **default value** is a system-generated value, a field content that is already apparent at the time of input. The initial content of a field used for entering a date, for example, is the current date. The user accepts the default value for a given field by pressing the **Enter** key without altering the pre-specified data; or he changes that data before pressing the **Enter** key.

The user usually moves from one field to the next by pressing one of the following: **Cursor Down**, **Cursor Up**, **Enter**, **Ctrl + End**, and **Ctrl + Home**.

- Pressing the **Cursor Down** key moves the cursor to the next field. (The key is inactive at the screen's last field.)
- Pressing the **Cursor Up** key moves the cursor to the previous field. (The key is inactive at the screen's first field.)
- Pressing the **Enter** key enters data, moving the cursor to the next field. (The keystroke causes some other event if the cursor is at the screen's last field.)
- Pressing the **End** key while holding down the **Ctrl** key usually places the cursor at the last field on screen.
- Pressing the **Home** key while holding down the **Ctrl** key usually places the cursor at the first field on screen.

The user revises data in a field by using these **editing keys**: **Cursor Left**, **Cursor Right**, **Backspace**, **Del**, **End**, **Home**, **Ins**, and **Ctrl + U**.

- Pressing the **Cursor Left** or **Cursor Right** key moves the cursor in the appropriate direction. The cursor's position defines the **current position** -- the onscreen point at which input is possible.
- Pressing the **Backspace** key (the grey, left-arrow key on the top line of the keyboard) deletes the letter previous to the cursor, moves the cursor to that position, and "pulls in" succeeding characters in the field.
- Pressing the **Del** key deletes the current character and "pulls in" succeeding characters in the field.
- Pressing the **End** key moves the cursor to the last position in the current field.
- Pressing the **Home** key moves the cursor to the first position in the current field.
- Pressing the **Ins** key toggles between the following:

    1. Insert mode. When InLab is in insert mode, each typed character is inserted to the left of the character at the current position. Each keystroke moves both the character at the current position and the line's subsequent characters to the right. InLab deletes characters moved beyond the edge of the workspace.

    2. Overwrite mode. When InLab is in overwrite mode, each typed character appears in place of the character at the current position.
- Pressing the **U** key while holding down the **Ctrl** key returns the field's contents to what had appeared there before the user last entered the field.

## 4. REPORT-SCANNING KEYS

InLab can print a report or present it on the screen. If the user displays the report on the screen, he can scan the report with these keys: -, +, /, A, B, **Cursor Controls**, D, **End**, **Enter**, **Esc**, F3, F10, **Home**, P, T, and **U**.

- Pressing either - key (at top or at right of the keyboard) reveals the 23 lines previous to those now onscreen, if possible, or reveals the report's first 23 lines. The effect is identical to that of pressing the **PgUp** or **U** key.

- Pressing either + key (at top or at right of the keyboard) reveals the 23 lines subsequent to those now onscreen, if possible, or reveals the report's last 23 lines. The effect is identical to that of pressing the D, Enter, or PgDn key.

- Pressing the / key and a series of alphanumeric characters initiates a search of the table, after which InLab reveals the next repetition of those characters. The characters found in the table will be highlighted.

- Pressing the **A** key (A for Again) reveals the next repetition of the string for which InLab most recently searched. (The user had to have used the / instruction since beginning to view the report). The effect is identical to that of pressing the **F3** key.

- Pressing the **B** key (B for Bottom) reveals the report's last 23 lines. The effect is identical to that of pressing the **End** key.

- Pressing the **Cursor Left** or **Cursor Right** key scrolls the report 20 columns to the left or right, respectively. Pressing the **Cursor Up** or **Cursor Down** key scrolls the report 1 line up or down, respectively.

- Pressing the **Esc** key returns the user to InLab's menu. The effect is identical to that of pressing the F10 key.

- Pressing the **Home** key reveals the report's first 23 lines. The effect is identical to that of pressing the T key.

- Pressing the **P** key (P for Print) toggles between printing the report from the beginning, on the one hand, and stopping the print, on the other.

# IV. INLAB: A DETAILED DESCRIPTION

Once the user has entered the system, he interacts with the InLab menu, as described in Section III, Part 1.

The menu's first row gives access to InLab's four components: **sample management, system management, administration, and analysis.** The following pages review the user-system interactions for each of the four components.

## 1. SAMPLE MANAGEMENT

By accepting **sample management** at the first line of InLab's menu, the user reveals these second-line options: **login, reports, data base, and disposition.**

### 1.1 Login

Purpose: To register samples and associate previously defined tests with those samples. The system thereafter can track the status of each sample/test combination, and the user (working elsewhere in InLab) can enter results data associated with that combination.

Prerequisites: Working in the administration-management component, the user must have defined any tests being associated with the sample and must have defined the project in which the sample is being logged.

By accepting **login** at the second line, the user reveals two subsidiary options: **single** and **batch.**

#### Single

If the user wants to register a single sample, he accepts the leftmost heading on the menu's third line. The login form that appears elicits a variety of information. Exhibit IV-1 details the meaning usually associated with each field. Exhibit IV-2 displays the login form.

## Batch

The batch option facilitates registering a number of related samples, relieving the user from having to re-type data that are common to those samples.

The user working on the batch log-in form assigns values only to those fields whose values are identical (or similar) across all samples in the batch. The user is thereby creating a **template** screen. The input to that screen will appear as default values in the first subsequently displayed, sample-specific screen. (The template screen, unlike the screens that follow, also elicits the number of samples in the batch.)

When the user has pressed the Enter key to accept the template, InLab elicits a sample ID (unless an ID is automatically generated). A log-in screen for the first sample appears. The user can accept the self-created default values as they are, with minimal changes.

Once the user has registered the first sample in the batch, InLab elicits a second ID (unless an ID is automatically generated) and reveals a screen for registering the second sample. The default values are the values of the last sample entered. The process continues until the user has registered all samples in the batch.

## EXHIBIT IV-1

## FIELDS ON THE SAMPLE-LOGIN SCREEN

| Field Name | Meaning |
|---|---|
| Description | General comments on the sample |
| Rec. Date * | Date (mm/dd/yy) on which the sample was received |
| Holding Days | Number of days for which the sample will be held before testing begins |
| Shelf Life | Number of days before the sample's deterioration begins |
| Date Required * | Due date (mm/dd/yy) for test results |
| # of Tests * | Number of tests to be run on the sample |
| Sample Type | User-defined, alphanumeric code for the sample's category |
| Priority | User-defined priority ranking from 1-9, where 1 is the highest priority. |
| CAS # | Chemical Abstracts Society number (for chemicals) |
| Site/Source | User-defined, alphanumeric code for the sample's locational or organizational source |
| Method | User-defined, alphanumeric code for method of sample acquisition |
| Date | Date (mm/dd/yy) of sample acquisition |
| Time | Time of sample acquisition |
| Depth/Altitude | Numeric measure of the depth or altitude at which the sample was acquired |
| Location | User-defined, alphanumeric code for the sample's storage location |
| Container | User-defined, numeric code to specify a storage container |
| Log Page | Number that references a log-book page |
| Test(s) * | Alphanumeric codes that the user, working in InLab's administration-management component, has defined already; here, refers to the tests (at most, ten) that will be performed on the sample |
| Special Instructions | Additional information on how to handle the sample |

* The user must assign a value to this field

## EXHIBIT IV-2

## SAMPLE LOGIN SCREEN

```
 ------------------------------------------------------------------------------
|09/22/86            INLABORATORY DATA MANAGEMENT SYSTEM               10:12:07|
|                           Single Sample Login                                |
|                   Project: DEMO - Sample: SAMPLEID                           |
 ------------------------------------------------------------------------------
 ------------------------------------------------------------------------------
| Description:______________________________________________________________   |
| Rec. Date : 09/22/86 Holding Days: _0 Shelf Life: _0  Date Required:09/22/86 |
| # of Tests : ___     Sample Type : _0   Priority: _0                         |
| CAS #:___________                                              Depth/        |
| Collection Information:  Site/Source    Method    Date      Time   Altitude  |
|                          ___________    ______    09/22/86  _____  ___0.00   |
| Storage Information:     Location  Container  Log Page                       |
|                          ________  ________0  ________                       |
| Test(s):__________  _________                                                |
|         __________  _________                                                |
|   Special Instructions:_____________________________________________________ |
|                                                                              |
 ------------------------------------------------------------------------------
```

## 1.2 Reports

Purpose: To view a sample-management report.

Prerequisites: None.

By accepting "reports" at the second line, the user reveals six subsidiary options: **status, urgent, critical, worklist, res. sum** (for results summary), and **location**. The user views a particular report by accepting the associated option.

Section I, Part 1.1 gives further details on those reports.

### Selection Criteria

In relation to the status report, the user can select a subset of entries and thereby avoid producing a table that includes the status of every sample in the project. The user selects a subset by specifying a criterion such as "all samples with an ID greater than 86000123 and less than 86000167" or "all samples collected on 12/20/85 from an altitude greater than 1000 feet." The user can catalogue his criterion for later use.

If the user has selected "status" at the menu, he first views the message "Press Esc for complete report." Pressing the Esc key skips the procedure by which the user defines a selection criteria and allows the user to see or print data on every sample/test combination in the project. The message soon disappears soon if the user does not press the Esc key.

If the user wants to define a selection criteria, he responds to the message "Do you want to use a previously catalogued criterion (Y/N)?" The user who wants to employ such a criterion will then specify the criterion's name and thereafter view the status report; the user who (like most first-time users) does not want to employ a previously entered criterion will see a list of field names instead. The user highlights one or another field name by manipulating the **Cursor Up** and **Cursor Down** keys; he selects the highlighted field name by pressing the **Enter** key.

The user next highlights an operator like "equal to," "greater than," or "less than" by again manipulating the **Cursor Up** and **Cursor Down** keys. After the user has pressed the **Enter** key to select an operator, InLab elicits a value appropriate to the type of field (date, character, numeric, logical). The user then uses the Cursor- Controls-and-Enter mechanism to select "and," "or," or "finished."

"And" and "or" are Boolean operators. "And" means "select only those entries that fulfill the preceding rule(s) and the rule that will follow." "Or" means "select all entries that fulfill the preceding rule(s), the rule that will follow, or both."

Accepting "and" or "or" results in a re-display of the abbreviations; the user repeats the process from that point, in this case defining the second rule of a selection criterion.

InLab displays a maximum of 2 lines for a criterion. If the user adds more rules, the additional information will not appear on screen but will be used.

The user selects "finished" to complete the process. After deciding whether or not to catalog the newly specified criterion, the user gains access to the sample-status-report entries that fulfill the criterion.

## 1.3 Data Base

Purpose: To alter or delete data specified during sample login; to add or delete a test in relation to a sample; or to format results data for use in programs outside of InLab.

Prerequisites: Altering or deleting login data requires that the user has logged in the relevant sample.

Adding a test requires that the user (working in the administration-management component) has defined that test in the project in which the sample was logged.

Formatting of chromatography results data requires that the user has accepted the results data for the sample/test combination (so the data is no longer preliminary).

Formatting of microbiology results data requires that the user has completed all entry of results data associated with that sample/test combination.

By accepting **data base** at the second line, the user reveals four subsidiary options: **update**, **delete**, **tests**, and **export data**.

## Update

The procedure for updating a sample record is analogous to the single-login procedure. To add or delete a test, however, the user must use the **tests** function noted below.

## Delete

InLab elicits a sample ID, reveals the associated record, and asks the user to confirm the request. If the user enters a Y, InLab **deletes all information relevant to the sample** (including data on experiment setup and analytic results), and changes the sample's status to "deleted." If the user instead enters an N, no deletion occurs and the user returns to the menu.

## Tests

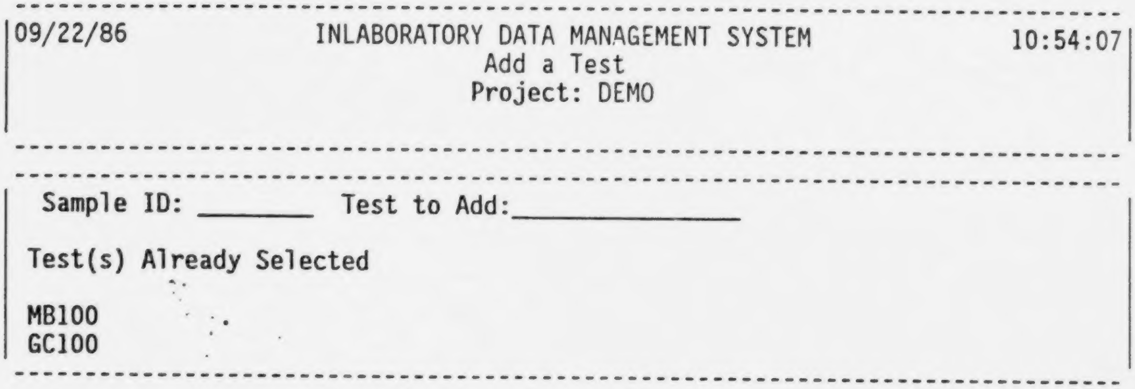
By accepting **tests** at the second line, the user reveals two subsidiary options: **add** and **delete**.

Accepting the former option, the user records that a particular sample will go through another test. Accepting the latter option, he deletes all results information associated with a particular sample/test combination and changes the status of that sample/test combination to "DELETED." (InLab disallows these actions if no other tests are associated with the sample). In any case, the test definition is unaffected. (The user defines, updates, and deletes tests in the test part of the administration-management component.)

Exhibit IV-3 displays the relevant screen.

## EXHIBIT IV-3

## ADD-A-TEST-TO-A-SAMPLE SCREEN



```
09/22/86              INLABORATORY DATA MANAGEMENT SYSTEM              10:54:07
                                  Add a Test
                                Project: DEMO

 Sample ID: _______   Test to Add:_______________

Test(s) Already Selected

MB100
GC100
```

### Export Data

Accepting **export data** reveals three fourth-level choices: **dBASE III**, **SDF**, and **delimited**.

InLab can format data as follows:

- **dBASE III**. Data are available for application programs written in dBASE III.
- **System Data Format (SDF)**. Data in different fields are not distinguished, one from the next, by commas, quotes, or other conventions. Rather, particular data fields oocur in specific columns of each data line. (Mainframe applications often use files in this format.)
- **Delimited**. Data in different fields are distinguished, one from the next, by commas, and character fields are delimited by quotes. Delimited data is stream oriented; that is, data fields are not arranged in lines (as is the case with SDF). Rather, those fields are arranged sequentially, separated by delimiting characters. (Lotus 123 uses files in this format; and a user can write BASIC programs to access such files.)

The user selects one of the above formats by accepting the appropriate option in the export-data part of the sample-management component. The exportable files are named by the user. If the user does not specify an extension to the name, InLab adds one of the following: .DBF (for dBASE III), .SDF (for System Data Format), or .DEL (for delimited).

InLab's reformatting process allows the user to select and reorder the sequence of data fields. The user may need to further reformat data fields of logical or date data types because some software packages use representations other than standard dBASE representations for those two data types.

### 1.4 Disposition

Purpose: To specify a way in which laboratory personnel are to handle the data associated with a particular sample/test combination. The meanings of the available dispositions are user defined.

Prerequisite: The user must have logged in the sample and associated it with the test specified in this part of InLab.

By accepting **disposition** at the second line, the user reveals six subsidiary options: **normal**, **cancel**, **hold**, **approved**, **release**, and **other**. The user here specifies the disposition of a particular sample/test combination.

When the user has selected one of the options, an overlay appears, as displayed in Exhibit IV-4. The required fields are sample ID, test name, and (for microbiology applications) replicate-experiment number. (The replicate-experiment number must be "1" for non-microbiology applications.)

Note: In the microbiology application, a sample/test combination may be associated with more than one replicate experiment. InLab associates each sample/test/replicate-experiment combination with a specific status and disposition.

See Section I, Part 1.1 for further information on disposition.

EXHIBIT IV-4

DISPOSITION OVERLAY

```
 ----------------------------
| Sample Disposition - NORMAL |
|                             |
|   Sample ID  :__________    |
|   Test       :__________    |
|   Replicate  :__________    |
|                             |
 ----------------------------
```

## 2. SYSTEM MANAGEMENT

By selecting **system management** at the first line of InLab's menu, the user reveals these second-line options: security, **CDD reports**, **InLab options**, **audit trail**, and DOS.

## 2.1 Security

Purpose: To discriminate among users as to who can access which sections of InLab; and to generate the security-status report. (See Section I, Part 1.2.)

Prerequisites: None.

By selecting **security** at the second line, the user reveals two subsidiary options: **user** and **report**.

### User

Selecting **user** reveals a list of users and their associated clearance levels, as displayed in Exhibit IV-5, below. Exhibit I-1 in Section I details what levels are available.

Some of the function keys (the grey, F1-F10 keys at the left of the keyboard) are active, as specified at the bottom of the screen.

The system manager performs most functions on whatever row is currently highlighted. He can revise data, for example, on that row. To highlight another row, the manager usually can press the **F5**, **F6**, or **Enter** key.

To allow a new user to access InLab, the system manager presses the **F2** key and enters data in four newly displayed fields, pressing the **Enter** key to confirm each field's content. Each user name must be unique among user names, but a password may appear more than once.

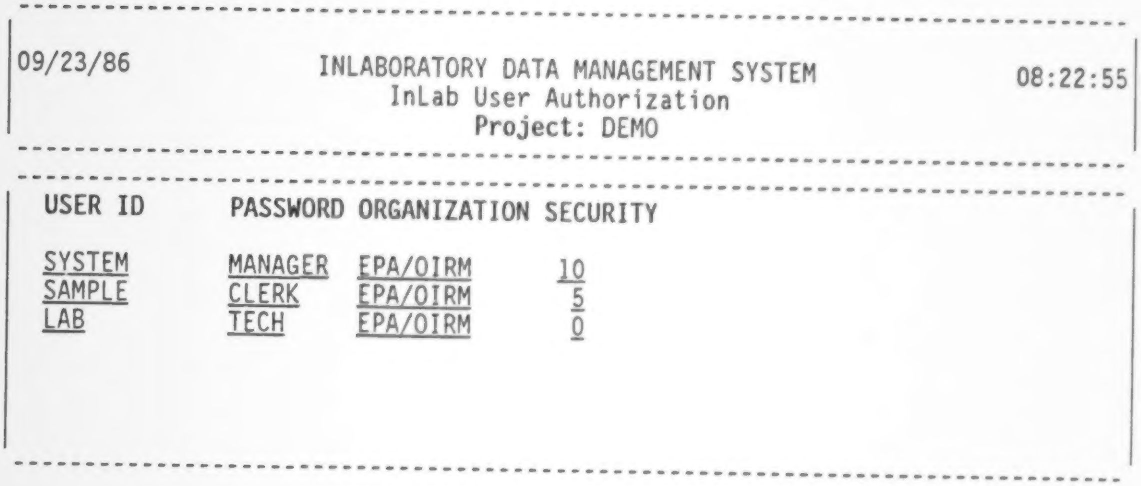
To delete a row, the system manager presses the **F3** key, which places an asterisk next to the highlighted row. If the manager changes his mind, he presses the **F4** key to remove the asterisk.

Pressing the **F10** key saves the changes made since the manager was last at the InLab menu. Data in rows associated with asterisks will disappear.

Pressing the **Esc** key returns the user to the main menu, saving none of the changes made since the user was last at the menu.

## EXHIBIT IV-5

## USER-AUTHORIZATION SCREEN



```
09/23/86            INLABORATORY DATA MANAGEMENT SYSTEM            08:22:55
                          InLab User Authorization
                              Project: DEMO

  USER ID      PASSWORD ORGANIZATION SECURITY

  SYSTEM       MANAGER  EPA/OIRM        10
  SAMPLE       CLERK    EPA/OIRM         5
  LAB          TECH     EPA/OIRM         0
```

### Report

Accepting **report** from the menu's third line reveals the "screen or printer" message associated with the security report that is described in Section I, Part 1.2. Section III, Part 4 lists the keys that are active if the user views the report on screen.

## 2.2 CDD Reports

Purpose: To print out information on InLab's data structures. The information is necessary for using that data in custom-designed programs.

Prerequisites: None.

By accepting **CDD reports** at the second line, the user reveals three subsidiary options: **map**, **fields**, and **files**. Section I, Part 1.2 describes the report associated with each option.

## 2.3 InLab Options

Purpose: To alter certain characteristics of the system.

Prerequisites: None.

Section I, Part 2.2 describes the questions being asked of the system manager. To answer each question, the manager types the appropriate data (or accepts the default data) and presses the Enter key.

## 2.4 Audit-Trail Report

Purpose: To view the audit-trail report.

Prerequisites: None.

By accepting **aud. trail rep** at the second line, the system manager reveals the "screen or printer" message associated with the audit-trail report. He presses the appropriate key (or accepts a default value) and then presses the **Enter** key.

See Section I, Part 1.2 for information on the audit-trail report.

## 2.5 DOS

Purpose: To run DOS without exiting InLab.

Prerequisite: None.

By accepting **DOS** at the second line, the system manager goes to the computer's operating system; he returns to the InLab menu by entering the word "EXIT" at the DOS prompt.

WARNING! The directory from which the user types "EXIT" must be the InLab directory. If not, InLab will be unable to find every file; the system will malfunction.

## 3. ADMINISTRATION MANAGEMENT

By selecting **administration** at the first line of InLab's menu, the user reveals two second-line options: **project** and **tests**.

## 3.1 Project

Purpose: To add, revise, or delete projects; or to generate the project-status report.

Prerequisites: To add a project, the tests associated with that project must have been defined in the tests part of the administration-management component.

By accepting **project** at the second line, the user reveals four options: **add**, **update**, **delete**, and **reports**.

### Add

The user seeking to add a project specifies a unique name (a string of up to eight characters) and enters additional data. Exhibit IV-6 details the meanings generally associated with each field. Exhibit IV-7 displays the project-definition screen.

### Update

The process of updating a project is analogous to that of adding a project.

### Delete

When a user deletes a project, InLab deletes all the related files, including results data. (In other words, the system deletes the project subdirectory, all test sub-subdirectories, and all results files.) InLab requires that the user confirm his decision before the system will perform this function.

### Reports

By selecting **reports**, the user reveals the entry **status**. The user views the project-status report (shown in Appendix B, Section 3a) by selecting that entry.

## EXHIBIT IV-6

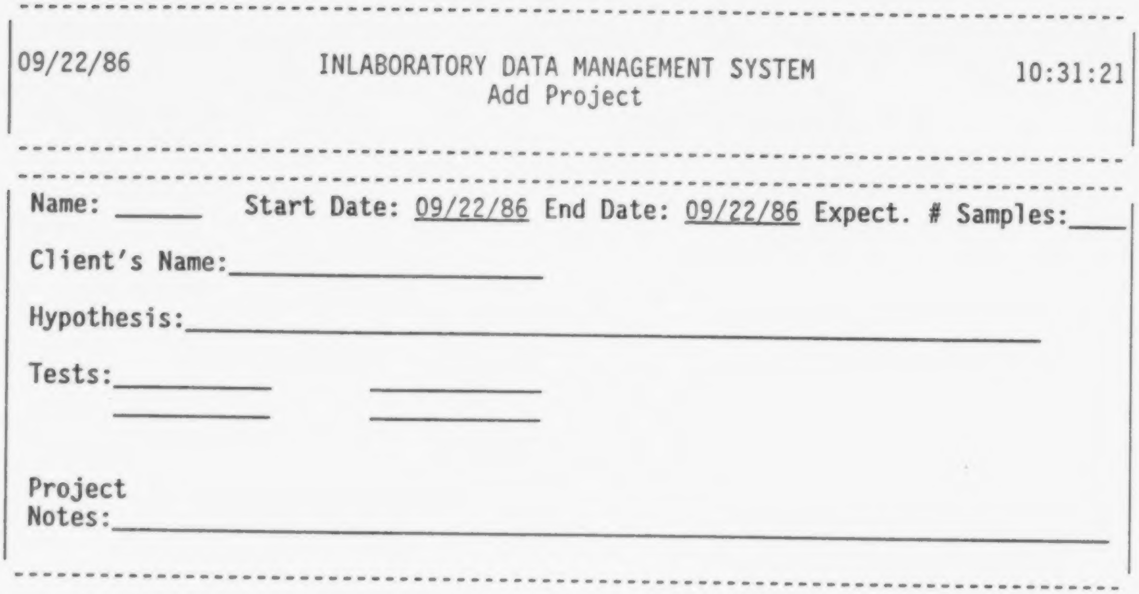
## FIELDS ON THE PROJECT-DEFINITION SCREEN

| Field Name | Meaning |
|---|---|
| Project Name * | User-defined, alphanumeric project identifier, up to 8 characters |
| Start Date * | Date (mm/dd/yy) on which the project will begin. (Current date appears as a default.) |
| End Date * | Date (mm/dd/yy) by which the project will be completed. (Current date appears as a default.) |
| Expected # Samples | Number of samples to be analyzed in the project |
| Client's Name | Name of the person, company, or organizational unit for which the project is being conducted |
| Hypothesis | Statement that the project is designed to test |
| Test(s) | As many as 10 name(s) of the tests to be run on the project's samples |
| Project Notes | Comments, instructions, or additional information on the project |

* The user must assign a value to this field

## EXHIBIT IV-7

## ADD-PROJECT SCREEN



```
09/22/86              INLABORATORY DATA MANAGEMENT SYSTEM              10:31:21
                                 Add Project

Name: ______   Start Date: 09/22/86 End Date: 09/22/86 Expect. # Samples:____

Client's Name:______________________

Hypothesis:____________________________________________________________

Tests:___________      ____________
      ___________      ____________

Project
Notes:_______________________________________________________________________
```

## 3.2 Tests

Purpose: To add, revise, or delete a test; or to generate a test report.

Prerequisites: None.

By selecting **tests** at the second line, the user reveals four options: **add**, **update**, **delete**, and **report**.

### Add

The user seeking to add a test specifies a unique name (a string of up to eight characters) and enters additional data. Exhibit IV-8 details the meanings generally associated with each field. Exhibit IV-9 displays the add-test screen.

### Update

The process of updating a test is analogous to that of adding a test.

### Delete

When a user deletes a test, InLab disallows the assignment of that test to samples that have yet to be logged. InLab requires that the user confirm his decision before the system will perform this function.

Note: In relation to sample/test combinations already in InLab, the system in any case continues to store results data and, where appropriate, to accept further results data.

### Report

Accepting "report" from the menu's third line reveals the test report, as described in Section I, Part 1.3.

## EXHIBIT IV-8

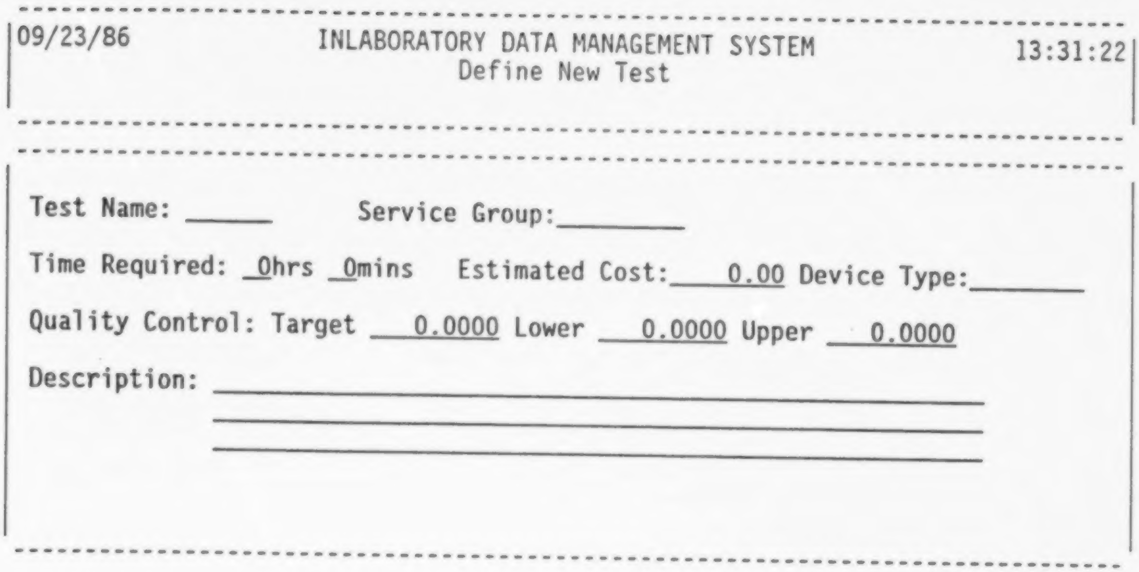
## FIELDS ON THE TEST-DEFINITION SCREEN

| Field Name | Meaning |
|---|---|
| Test Name * | User-defined, alphanumeric test identifier, up to 8 characters |
| Service Group | User-defined, alphnumeric code for person or group that will perform the test. (InLab uses this field when generating the worklist report.) |
| Time Required | Time required to conduct the test |
| Estimated Cost | Estimated cost of the test |
| Device Type | Alphanumeric code representing the laboratory instrument used to conduct the test. At this time, the code can be only COULTER (for the microbiology application) or HP5880 (for the chromatography application). |
| Quality Control | Upper, lower, and target values that can be compared with the experimental results to determine, for example, whether an instrument is measuring accurately; the values appear on the sample results-summary report. |
| Description | General comments on the test |

* The user must assign a value to this field

## EXHIBIT IV-9

## ADD-A-TEST SCREEN



```
09/23/86            INLABORATORY DATA MANAGEMENT SYSTEM            13:31:22
                              Define New Test

Test Name: _____      Service Group:________

Time Required: _0hrs _0mins  Estimated Cost:____0.00 Device Type:_______

Quality Control: Target ___0.0000 Lower ___0.0000 Upper ___0.0000

Description: __________________________________________
             __________________________________________
             __________________________________________
```

# 4. ANALYSIS

By accepting **analysis** at the first line of the InLab menu, the user reveals two second-line options: **chromatography** and **microbiology**.

## 4.1 Chromatography

InLab's chromatography application does the following:

- Tracks and reports data associated with sample analysis;
- Performs routine operations associated with setting up the chromatograph for sample analysis; and
- Retrieves data from the chromatograph.

The system automates results-data management, but not the manual calibration and sample-analysis procedures; the user may perform those operations manually or by use of an automatic sample-injection system.

The chromatography application generates two types of reports:

- **Final** (or **chromatography-level**) reports contain all chromatography results data that the user has accepted as valid.
- **Preliminary** (or **instrument-level**) reports contain data on all project samples whose results have been transferred from the chromatograph to InLab. Instrument-level reports, which are based on preliminary sample-results files, allow the user to review the analytical data before posting that data to the final sample-results files; the latter files are the basis for the chromatography-level reports. (Posting, which generally implies acceptance of the data, occurs at the **post-results** part of InLab.)

## InLab Method Files

The user of InLab's chromatography application specifies a **method** for analyzing samples. A method, which is an extension of a test, comprises the following:

- A set of calibration data; and
- A list of commands appropriate to a specific type of instrument, commands that dictate set points (like oven temperature, detector temperature, column-flow rate) and other parameters (like device on/off, printer on/off).

A one-to-one correspondence exists between method and test, and a method has the same name as the test with which that method is associated.

The user may develop a method at the instrument console or through InLab. Several system features are relevant to the user who wants to use InLab:

- The **console** operation makes the computer's keyboard into an extension of the instrument; the user can type commands as if he were at the chromatograph's console.
- Other **communications** options allow the user to transfer method data between the instrument and InLab, in both directions.
- The **data-base** options allow the user to manipulate method data for later transfer to the instrument.

Note: InLab associates a particular name with a particular method for all chromatographic applications, for all projects.

## Naming Conventions

When entering calibration data at the instrument console, the user should refer to the component-table reports generated by InLab. Each peak ID number entered at the chromatograph should be identical with the associated entry in that report.

In addition, the user must use a particular ID to identify a particular sample in the following situations:

- When registering the sample to InLab (through sample login);
- When transferring results data from the chromatograph to InLab; and
- When storing results data on the chromatograph's tape unit, if such a unit is present.

## Menu Options

By accepting **chromatography** at the second line of the InLab menu, the user reveals three options: **reports**, **instrument**, and **data base.**

### Reports

Purpose: To generate chromatography-level reports.

Prerequisite: The reports that reveal results data do so only for sample/test combinations whose results have been posted.

Accepting **reports** at the second line gives access to the following chromatography-level reports, as displayed in Appendix B, Section 4a-d:

- The **chromatography component-class table** lists the component classes and their corresponding class codes, as specified by the user in the **class-update** part of the analysis component. The class table is one of the sources that InLab uses to construct the **component-classification summary**, considered below. The class table applies to all chromatography projects in the user's InLab installation.
- The **chromatography-results summary** lists, for the project, summary data on each sample for which the user has posted results.
- The **chromatography-results report** presents detailed information about the constituents of a sample.

- The **component-classification summary** aggregates into classes the components that constitute a particular sample; and details what percentage of the sample is associated with each class.

Additional, more detailed reports are available in the instrument part of the chromatography subcomponent.

Instrument

Purpose: To allow the user to interact with a particular gas chromatograph; and to generate instrument-level reports.

Prerequisite: Communications interface with a chromatograph.

After accessing **instrument** at the second line, the user specifies an instrument type. At this time (October 1986) InLab supports only the Hewlett Packard 5880A gas chromatograph. The following parts are subordinate to the menu item **HP-5880**: **communications**, **reports**, and **post results**.

Communications. The user in this part of InLab highlights one or another option by manipulating the **Cursor Up** and **Cursor Down** keys and selects the highlighted option by pressing the **Enter** key.

Selecting the **console** option causes the PC keyboard to emulate (act identically to) the chromatographic-workstation keyboard. The user may type any command that the HP-5880 would accept from the console keyboard; InLab transfers the data immediately. Selecting the **tape-directory** option displays the names of as many as 108 numeric-report files on the HP tape; the user who wants to display the names of all files on the tape can do so by accessing the TDIR command through the console option mentioned above.

The next three operations (**up from memory**, **up from tape**, and **batch upload**) share several features. Each does the following:

- Generates a message if the system has no record of the sample login (in which case the user should either go to the sample-login operation in the sample-management component or check the HP-5880 tape contents by using the **tape-directory** option, above. Note that the user working with the HP tape unit must store numeric reports under the same name as used to login the sample in InLab.)
- Produces a preliminary sample-results file. Preliminary reports are based on data stored in the preliminary sample-results files.
- Changes the sample status from "logged" to "pending."

WARNING! If the user wants to preserve the numeric report currently in HP memory, he must take one of two actions **before** selecting the up-from-tape or batch-upload operation: he must transfer the numeric report to InLab (through the up-from-memory operation) or save the numeric report to the tape unit (by entering the appropriate HP-5880 command at the HP console or through InLab's console operation).

Selecting the **up-from-memory** option initiates the transfer of the most recently used numeric report (which resides in the HP memory until the start of a new analysis) from the HP-5880 to a preliminary sample-results file. Only the most recently used report is available through this option.

Selecting the **up-from-tape** option initiates the transfer of the selected numeric report by a two-step operation:

- From tape file into HP memory (at which point the report becomes the current numeric report); and
- From the HP memory to a preliminary sample-results file.

The implication of the two-step process: the selected report will reside in the HP memory until execution of the next sample analysis or up-from-tape operation. Selecting the **batch-upload** option first lists the numeric-report files that are on the current tape. The user selects the desired files from that list by the usual **Cursor-Control-and-Enter** procedure; InLab then transfers, to preliminary sample-results files, all the selected numeric-report files associated with logged samples. (If the user selects several numeric-report files, only some of which are associated with logged samples, InLab asks him whether he wants to upload the files associated with logged samples.)

The transfer of a numeric report requires at least 15-20 minutes; the batch-upload option allows the user to transfer several numeric-report files without user intervention (overnight, for example). Selecting the **upload-method** option transfers the analysis, calibration, and program files from the HP-5880 to the PC and reorganizes those files into InLab's method file and component table. This operation takes appoximately 30-40 minutes, but allows the user to quickly update the component table (that is, the calibration information) by his doing the following thereafter:

- Selecting the up-calibration operation, described below;
- Altering data by working in the modify-method part of InLab, described later; and
- Selecting the down-calibration option, described below.

Note: If the user wants to produce **classification-summary reports**, he must respecify class codes whenever he uploads a new component table. The respecification is necessary because the HP-5880 does not use class codes in its operation. The addition of class codes enables InLab to generate the desired reports.

Selecting the **download-method** option allows the user to restore a previously uploaded method without his having to re-enter extensive information from the HP console or InLab keyboard. This operation takes approximately 15-20 minutes, after which the chromatograph is ready for sample analysis.

Selecting the **up-calibration** option transfers the calibration file from the HP-5880 to the PC and reorganizes that data into InLab's component table. As mentioned above, this operation allows the user to update an existing method.

When the user transfers calibration data to the PC, this HP calibration data will replace the current calibration data associated with the named method, but the InLab-stored setup commands are unaffected. If the user also wants to maintain a record of the outdated calibration table, he must save the HP calibration file to the HP tape.

Note: As mentioned earlier, the user must respecify class codes if he wants to produce **classification-summary reports**.

Selecting the **down-calibration** option allows the user to transfer a set of calibration data to the HP without affecting the step-by-step commands stored in the analysis and program files that are in the HP memory.

Reports. Accepting **reports**, which is subordinate to the **HP-5880** entry on the menu, gives access to the instrument-level reports displayed in Appendix B, Section 4e-h:

- The **HP-5880 analysis-results summary** summarizes chromatographic results for all samples in a particular project.
- The **HP-5880 detailed peak report** presents detailed peak information on a particular sample.
- The **HP-5880 peak-summary report** summarizes component information for a particular sample.
- The **HP-5880 calibration table** presents calibration data for a particular method.

Post Results. In **post results**, the user accepts the results of a chromatography analysis and causes the sample/test status to change from "pending" to "complete." Chromatography-level reports hereafter will include the posted data. (InLab retains the preliminary results information and so can generate all instrument-level reports for the project.)

If, at a later time, the user finds the sample data to be unacceptable, he may re-analyze the sample and transfer the revised information to InLab by using the communications option. That re-transfer of primary-results data would change the sample status back to "pending."

To post results, the user simply specifies the sample and test for which results are to be posted.

### Data Base

Purpose: To create or revise method data and to specify how InLab will group components into classes.

Prerequisites: To revise method data, a method must have been uploaded from the instrument and given a test name valid for the project.

Note: Transfer of method data from InLab to the chromatograph occurs only when the user is working in the communications part of the chromatography component.

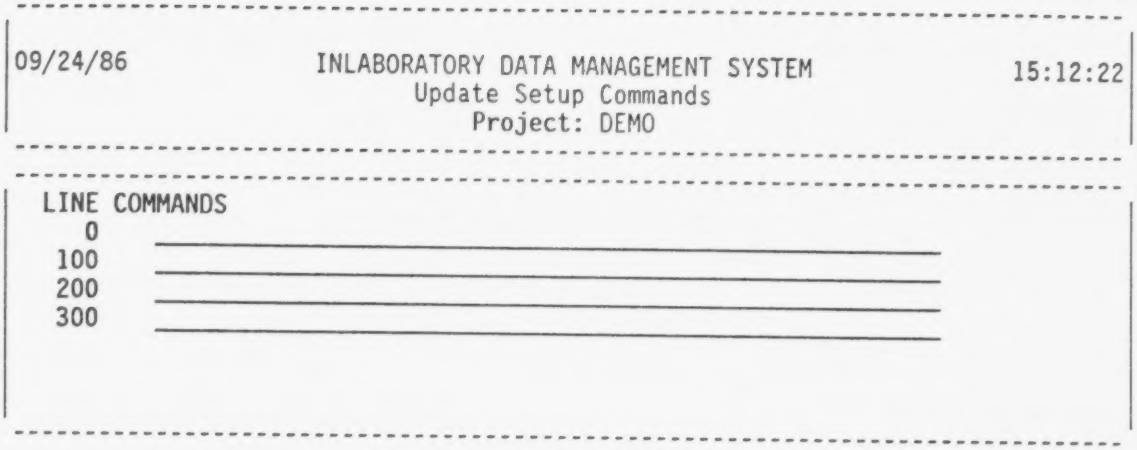
Add Method. Accepting the **add-method** option allows the user to create a method on the PC keyboard, but first gives him an initial option of copying data from an existing method. (Copying a method is non-destructive; the method being copied is unaffected.) The user next interacts with three screens.

At the **setup-commands** screen (displayed as Exhibit IV-10), the user revises chromatograph commands as appropriate. (For the HP-5880 application, those commands are derived from the chromatograph's analysis and program files.) The line number determines the command's sequential position in the list.

The user can change the currently highlighted command by using the usual input rules. To highlight another command, the manager usually can press the F5 or F6 key.

## EXHIBIT IV-10

## SETUP-COMMANDS SCREEN



```
09/24/86          INLABORATORY DATA MANAGEMENT SYSTEM          15:12:22
                        Update Setup Commands
                            Project: DEMO

  LINE COMMANDS
     0    ____________________________________________
   100    ____________________________________________
   200    ____________________________________________
   300    ____________________________________________
```

To add a new command, the user presses the F2 key and enters data in the newly displayed row, pressing the **Enter** key to confirm each field's content. Pressing the **Enter** key at the last field generates a confirmation message; the user responds to that message by pressing **Y** or **N**, then the **Enter** key.

To delete a command, the user presses the F3 key, which places an asterisk next to the highlighted command. If the user regrets the choice, he presses the **F4** key to remove the asterisk.

Pressing the **F10** key saves the changes made since the user was last at the InLab menu. Data in rows associated with asterisks will disappear.

The user now enters data to the **component table**, which contains calibration information. The user enters the data specified in Exhibit IV-11. Exhibit IV-12 displays the relevant screens.

> Note: For the HP-5880 application, the user working at the instrument console usually will have entered numeric codes that he associates with components according to some internal system; he saves memory space in the chromatograph by failing to enter the components' names. When entering data at the component-table screens, however, he associates a name with each component code, thereby increasing the understandability of InLab reports.

The function keys mentioned above are still active; the user moves from the first component-table screen to the second by pressing the **F10** key.

Modify Method. Accepting the **modify-method** option reveals two other menu items: **component table** and **setup commands**. The procedures associated with revising either the component table or the setup commands are analogous to the procedures for adding data.

Modify Class. In the **modify-class** operation, the user associates chemical-class codes (0-9999) with names. The resultant class table (which the user can view as a chromatography-level report) is one of the sources that InLab uses to construct the **component-classification summary**, a report that groups sample results by class.

> Warning! The information on the class table is applicable to all chromatographic projects in InLab. All users therefore must apply the class codes consistently.

We recommend using the class code 0 for all components of an unknown or unspecified class.

## EXHIBIT IV-11

## FIELDS ON THE COMPONENT-TABLE SCREENS

### Screen 1

| Field Name | Meaning |
|---|---|
| Code | Code that the user associates with the component |
| RT | Component's retention time, in minutes |
| Level | Concentration level used for a multilevel calibration |
| Amount | Concentration or mass amount of the component |
| Area/Amt | Area of peak per amount of the component |
| Reference | 0 if the component will not be used as a reference, 1 if the component will be a reference peak |
| Component Name | Chemical name of the component |
| Class | Chemical class to which the component belongs, as specified in InLab's class-update operation |

### Screen 2

| Field Name | Meaning |
|---|---|
| Area Calc Method Name | Method of area calculation: ISTD=internal standard; ISTD% = internal-standard percentage; ESTD = external standard; ESTD% = external-standard percentage; NORM = normal (area); NORM% = area percentage |
| Peak Area Multiplier | Area calculation constant to be used |
| Ref Peak Window % | Drift acceptable for the reference peaks |
| Non-Ref Peak Window % | Drift acceptable for the non-reference peaks |
| RF for Uncal Peaks | Response factor for uncalibrated peaks |
| Sample Amount | The amount of sample injected into the instrument |

* The user must assign a value to this field.

## EXHIBIT IV-12

## COMPONENT-TABLE SCREENS

```
--------------------------------------------------------------------------------
|09/22/86          INLABORATORY DATA MANAGEMENT SYSTEM                 11:00:28|
|                       Modify Component Table                                 |
|                           Project: DEMO                                      |
--------------------------------------------------------------------------------
```

Screen 1

```
--------------------------------------------------------------------------------
| CAL#   RT    LEVEL       AMT      AREA/AMT     REF COMPONENT             CLASS|
|  __0  0.000  ___0     0.000000 0.0000000     _0  _____________________   ___0|
|                                                                               |
|                                                                               |
--------------------------------------------------------------------------------
```

Screen 2

```
--------------------------------------------------------------------------------
|         Area Calc Method Name    :____________________                        |
|                                                                               |
|         Peak Area Multiplier     :____________________                        |
|                                                                               |
|         Ref Peak Window (%)      :____________________                        |
|                                                                               |
|         NonRef Peak Window (%)   :____________________                        |
|                                                                               |
|         RF for Uncal Peaks       :____________________                        |
|                                                                               |
|         Sample Amount            :____________________                        |
--------------------------------------------------------------------------------
```

## 4.2 Microbiology

InLab's microbiology application was developed specifically for the Environmental Protection Agency's Health Effects Research Laboratory (HERL), Research Triangle Park, North Carolina. The application is based on HERL's document The Genetic Bioassay Branch Protocol for Bacterial Mutagenesis Including Safety and Quality Assurance Procedures. Using InLab obviates the need to enter experimental results on the data-entry forms specified in that document.

The microbiology user should enter sample IDs of four characters, as per the sample-ID convention specified by HERL.

### Reports

The microbiology reports, displayed in Appendix B, Sections 4i-l, are as follows:

- The **microbiology status report** lists the sample status for each sample/test/strain/activation combination in the project.
- The **microbiology results report** lists counts for each strain/activation/replicate-experiment/dose combination in the project, where such counts have been entered.
- The **experiment definition report** lists the parameters associated with a particular, user-defined experiment.
- The **validation tables** list entries that InLab, to check the validity of user input, compares against that input.

### Menu Options

By selecting **microbiology** at the menu's second line, and **colony** at the third, the user reveals five options: **results**, **experiment**, **reports**, **transactions**, and **tables**.

## Results

Purpose: To enter results data for a sample/test/strain/activation combination.

Prerequisite: The user must have defined an experiment comprising the sample/test/strain/activation combination for which results are to be entered.

Here, in a semi-automatic process, the user transfers results from the Coulter Colony Counter to InLab. (By the time the user has reached this point, he will have defined an experiment, as discussed below.)

The results screen elicits a variety of information. Exhibit IV-13 details the meaning generally associated with each field. Exhibit IV-14 displays the Colony Counter Results Entry Screen.

To enter one of the instrument's counts, the user positions the plate and presses the print button on the ARTEK interface; the count then appears on the InLab screen. Alternatively, the user can enter counts directly from the keyboard. Usually, the user accepts three counts for the same plate, and InLab generates and stores the mean of the three figures. The user, however, can press the **Enter** key to skip a counting; InLab will exclude the skipped measurement when calculating the mean. Also, the user can enter one of the following codes instead of entering a number:

- o **NATC** (for "not able to count");
- o **TNTC** (for "too numerous to count"); and
- o **T*** (for "toxic")

Once the user has entered one of those three codes, InLab will not elicit additional counts for the plate.

## EXHIBIT IV-13

## FIELDS ON THE COLONY COUNTER RESULTS ENTRY SCREENS

Note: Pressing the Enter key at the last field of the completed first screen moves the user to the second screen.

### Screen 1

| Field Name | Meaning |
|---|---|
| Sample | ID of sample for which results will be entered |
| Test | Name of test that was run on the sample |
| Strain | Strain of bacteria for which results will be entered. (The strain must be listed in the **m. strain table**; see the section on tables, below.) |
| Activation | A one-letter code (Y = yes, N = no, O = other) specifying whether the plates for which results will be entered include activation factor (Y or N) or another activation factor (O) |

### Screen 2

| Field Name | Meaning |
|---|---|
| Replicate | Number of the replicate experiment for which results will be entered |
| Phen Check | Code corresponding to results of the phenotypic-reversion check. (The code must be listed in the **phenocopy-check table**; see the section on tables, below.) |
| S9 Ster | Code representing the sterility of the activation mix, where 1 = not contaminated, 2 = contaminated, 3 = not checked |
| Act Mix/Plate | Amount of activation mix applied to the plate |
| Samp Ster | Code representing the sterility of the sample, where 1 = not contaminated, 2 = contaminated, 3 = not checked |
| Preincubation Time, Temp | Number of minutes and Celsius degrees for pre-incubation |
| Tech * | Name of the technician conducting the test or entering the results |
| Conc. Units | Units of measurement for dose or solvent concentration. (The units must be listed in the **conc. units table**; see the section on tables, below.) |
| Stock Conc. | Concentration of the stock-test chemical or solvent |
| Amt/Plate | Amount of test chemical or solvent per plate |

* The user must assign a value to this field

## EXHIBIT IV-14

## COLONY COUNTER RESULTS ENTRY SCREENS

Screen 1

```
-------------------------------------------------------------------------------
|                                                                             |
|09/22/86             INLABORATORY DATA MANAGEMENT SYSTEM             13:58:59|
|                           Colony Counter Results                            |
|                               Project: DEMO                                 |
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
|                                                                             |
| Sample ID:_________  Test:_________   Strain:______    Activation:_____      |
|                                                                             |
|                                                                             |
-------------------------------------------------------------------------------
```

Screen 2

```
-------------------------------------------------------------------------------
|09/22/86             INLABORATORY DATA MANAGEMENT SYSTEM             11:07:06|
|                           Colony Counter Results                            |
|   Project: DEMO - Sample: 86000170 - Test: MB100 - Strain: TM35 - Act: N    |
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
|                                                                             |
| Replicate: _1 Phen Check: __ S 9 Ster: __ Act Mix/Plate:  ___  Samp Ster: __|
|                                                                             |
|                Time  Temp                                                   |
| Preincubation: ____  ____  Tech: ___   Positive Control - __ Dose: ___      |
|                                                                             |
|                          Plate A    Plate B    Plate C    Plate D    Plate E |
| Conc  Stock  Amt/    Count  BG  Count  BG  Count  BG  Count  BG  Count  BG  |
| Units Conc   Plate                                                          |
|        0.00   __0                                                          |
|                                                                             |
|                Plate Count: 1       2       3       Mean                    |
|                                                                             |
|                                                                             |
-------------------------------------------------------------------------------
```

## Experiment

Purpose: To record or revise the parameters (strains, doses, activation types, controls, and so forth) for an experiment associated with a particular sample/test combination.

Prerequisite: The sample/test combination must have been logged in. Also, the device type specified in the test definition must be COULTER.

The user cannot update an experiment for which any results have been collected.

By accepting **experiment** at the menu's third line, the user reveals three options: **single**, **batch**, and **update**.

The first option allows him to define an experiment: a protocol by which he will determine the mutagenicity of a single sample. The batch option, which facilitates defining a number of related experiments, relieves the user from having to retype data that are common to those experiments. (The relationship of single to batch in this context is analogous to the relationship of single to batch in the sample-login section of InLab.) The update option allows the user to redefine any previously defined experiment for which the user has yet to enter results data.

In any case, the user interacts with at least three InLab screens. Exhibit IV-15 details the meaning associated with each field in each screen. Exhibit IV-16 displays the experiment-definition screen.

Note: If the user specifies that the plates are both to include and not to include activation factor, then screen 3 appears twice, each time with a heading that indicates whether the displayed screen is associated with the presence or absence of activation factor.

The keys mentioned in Section II, Part 3 are active. Several function keys are also active at screens 2 and 3: Pressing the F7 key moves to the previous screen (but not previous to screen 2); pressing the F8 key moves to the next screen, if any; and pressing the F10 key completes the experiment definition.

Note: After pressing the F10 key, the user working at screen 2 or 3 may receive the message "incomplete definition! must supply all required information." The message refers to screens 2 and 3 (as well as to the screen-3 duplicate that InLab displays when activation factor is both present and absent). The message may reflect a deficiency on an unrevealed screen.

Batch. The user working in the batch option first specifies how many experiments are to be defined in the batch. He then identifies the "screen 1" information for each experiment (see Exhibit IV-15).

The user next works on screens 2 and 3, assigning values only to those fields whose values are identical (or similar) across all experiments in the batch. The user is thereby creating a pair of template screens. The input to those screens will appear as default values in the screens (subsequently displayed) that are associated with the first experiment.

When the user has pressed the F10 key to accept the template screens, the system reveals screen 2, here associated with the first experiment. The user, who can accept any or all of the self-created default values, follows the procedures specified above for entering a single experiment definition.

Once the user has pressed the F10 key, thereby defining the first experiment in the batch, InLab reveals screen 2, here associated with the second experiment. Now, the default values for screens 2 and 3 are those that were entered for the first experiment. The process continues until the user has defined all experiments in the batch.

## EXHIBIT IV-15

## FIELDS ON THE MICROBIOLOGY-EXPERIMENT DEFINITION SCREENS

Screen 1

| Field Name | Meaning |
|---|---|
| Sample | Identification of sample for which experiment is being defined |
| Test | Name of the test(s) to be run on the sample |
| Replicate Experiments | Number of identical experiments to be performed on the sample |

Screen 2

| Field Name | Meaning |
|---|---|
| # Plates | Number of plates per dose |
| Activation | A one-letter code (Y = yes, N = no, B = both, O = other) specifying whether the plates include activation factor, do not include that factor, both include and do not include that factor, or include another activation factor. |
| Activation Batch | User-defined identifier of the batch from which the activation mix was taken |
| Strains | Strains of bacteria being used. (The strains must be listed in the **m. strain table**; see Appendix B, Section 41.) |
| Batch | User-defined identifier of the batch from which bacteria were taken |
| Dose(s) | Dose concentration(s) |
| Dose Units | Units of measurement for the associated dose concentration. (The units must be listed in the **dose-units table**; see Appendix B, Section 41.) |
| Research Lab | Code representing the laboratory doing the experiment. (The code must be listed in the **research-lab table**; see Appendix B, Section 41.) |
| Source Lab | Code representing the laboratory from which the sample came. (The code must be listed in the **source-lab table**; see Appendix B, Section 41.) |

## EXHIBIT IV-15 (Continued)

## FIELDS ON THE MICROBIOLOGY-EXPERIMENT DEFINITION SCREENS

Screen 3

| Field Name | Meaning |
|---|---|
| Sol 1 | Code for the solvent control. (The code must be listed in the solvent/pos. table; see Appendix B, Section 41.) |
| Amt | Amount of solvent applied per plate |
| Units | Units of measurement for solvent. (The units must be listed in the mass/vol. units table; see Appendix B, Section 41.) |
| Pos (1,2) | Code(s) for the positive control(s). (The codes must be listed in the solvent/pos. table; see Appendix B, Section 41.) |
| Dose (1,2,3) | Concentration(s) of the positive control(s) |
| Special Instructions | Comments or instructions |

## EXHIBIT IV-16

## MICROBIOLOGY-EXPERIMENT DEFINITION SCREENS

```
-----------------------------------------------------------------------------
|09/22/86          INLABORATORY DATA MANAGEMENT SYSTEM               11:09:04|
|                   Microbiology Experiment Definition                       |
|                            Project: DEMO                                   |
-----------------------------------------------------------------------------
```

Screen 1

```
-----------------------------------------------------------------------------
|                        Number of                                          |
|                        Replicate                                          |
| Sample      Test       Experiments                                        |
| ______      ____       _____                                              |
|                                                                           |
-----------------------------------------------------------------------------
```

Screen 2

```
-----------------------------------------------------------------------------
| Replicates per Plate: _1 Activation:___ Activation Batch:_____            |
|                                                                           |
| Strains:  ______  >  _______  >  _______  >  ________  >  _______         |
| Batch #:  ______     _______     _______     ________     _______         |
|                                                                           |
| Strains:  ______  >  _______  >  _______  >  _______  >  _______          |
| Batch #:  ______     _______     _______     _______     _______          |
|                                                                           |
| Doses: 1.______    2.______    3.______    4.______    5.______           |
|        6.______    7.______    8.______    9.______   10.______           |
| Dose Units:_____   Research Lab:_____  Source Lab:_____                   |
|                                                                           |
-----------------------------------------------------------------------------
```

## EXHIBIT IV-16 (Continued)

## MICROBIOLOGY-EXPERIMENT DEFINITION SCREENS

Screen 3

```
-----------------------------------------------------------------------------
|                                                                           |
|09/22/86              INLABORATORY DATA MANAGEMENT SYSTEM          11:19:56|
|     Microbiology Experiment Definition Sol/Pos Controls Activation -S-9   |
|               Project: DEMO - Sample: SAMPLEID - Test: MB100              |
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
|       Sol              Pos                          Pos                   |
| Strain 1  Amount Units 1   Dose1  Dose2  Dose3     2   Dose1  Dose2  Dose3|
| _____  _  ______ _____ _   _____  _____  _____     _   _____  _____  _____|
|                                                                           |
|                                                                           |
-----------------------------------------------------------------------------
```

## Reports

Purpose: To generate the microbiology reports.

Prerequisites: Generating a results report requires that the user has entered at least some results have been entered for the sample/test combination specified.

Generating a definition report requires that the user has defined an experiment for the sample/test combination specified.

By accepting **reports** at the menu's third line, the user four subsidiary options: **specimen status**, **results report**, **definition**, and **tables**. The user views a particular report by accepting the associated option.

## Transactions

Purpose: To format microbiology-results data for later transmission to EPA's National Computer Center.

Prerequisite: Only completed sample/test results data will be formatted.

By accepting **transactions** at the menu's third line, the user formats sample\test\strain microbiology-results data, with all control and dose data, for all such results data that have been completed. The formatting is consistent with that used on the HERL In-Vitro Results Form, shown on page 88 of the HERL document mentioned earlier. The resultant file is named TRANS.SDF, which resides on the project subdirectory.

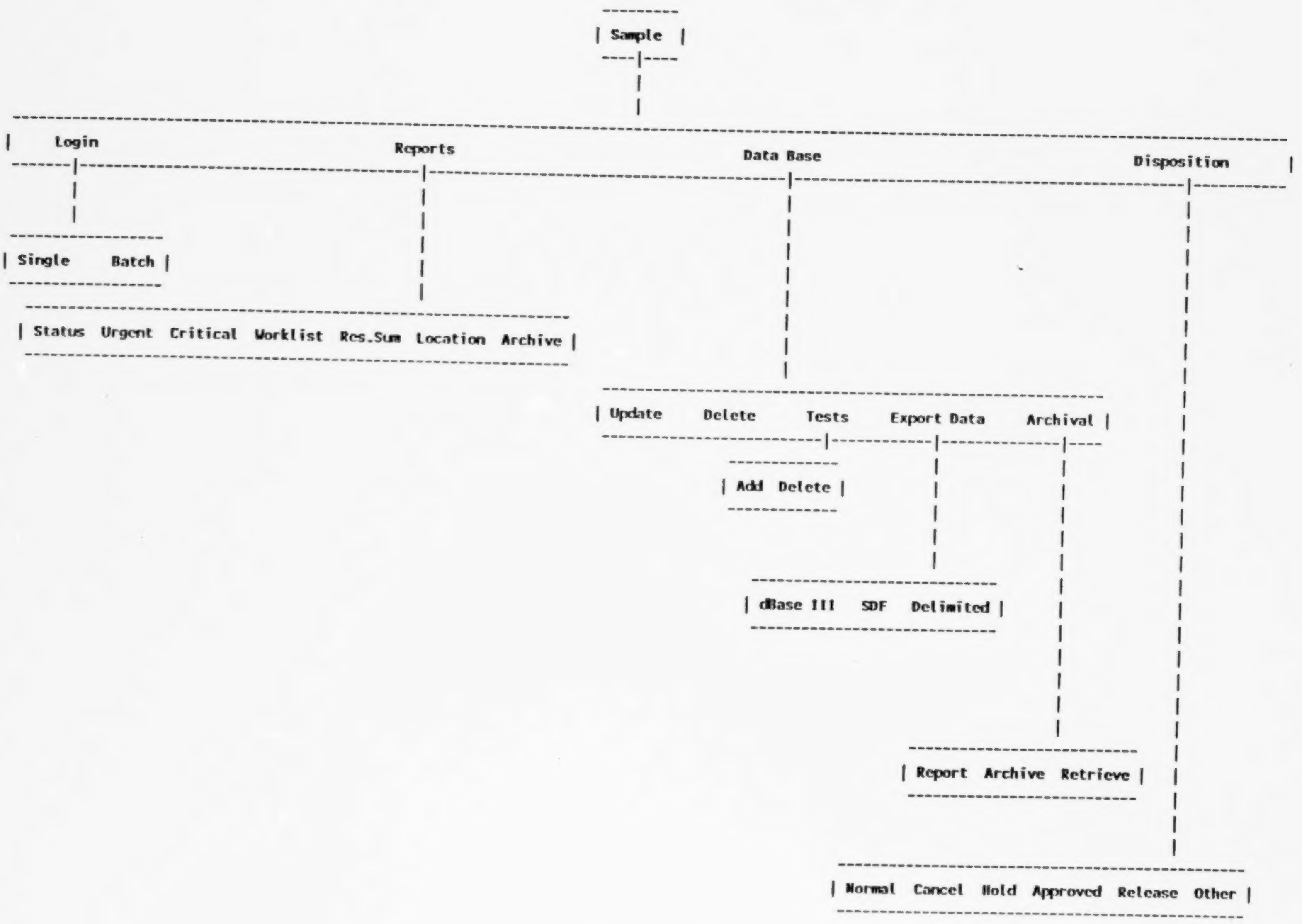
If a TRANS.SDF file already exists for the project, InLab will ask "Overwrite or Append?" Overwriting destroys the already existing file; appending adds new data to the end of the existing file.

Warning! Sending the transaction file to EPA's National Computer Center occurs outside of InLab, which does not record whether the transfer has occurred. The user must take care to preserve unsent material.

# APPENDIX A

# INLAB MENU

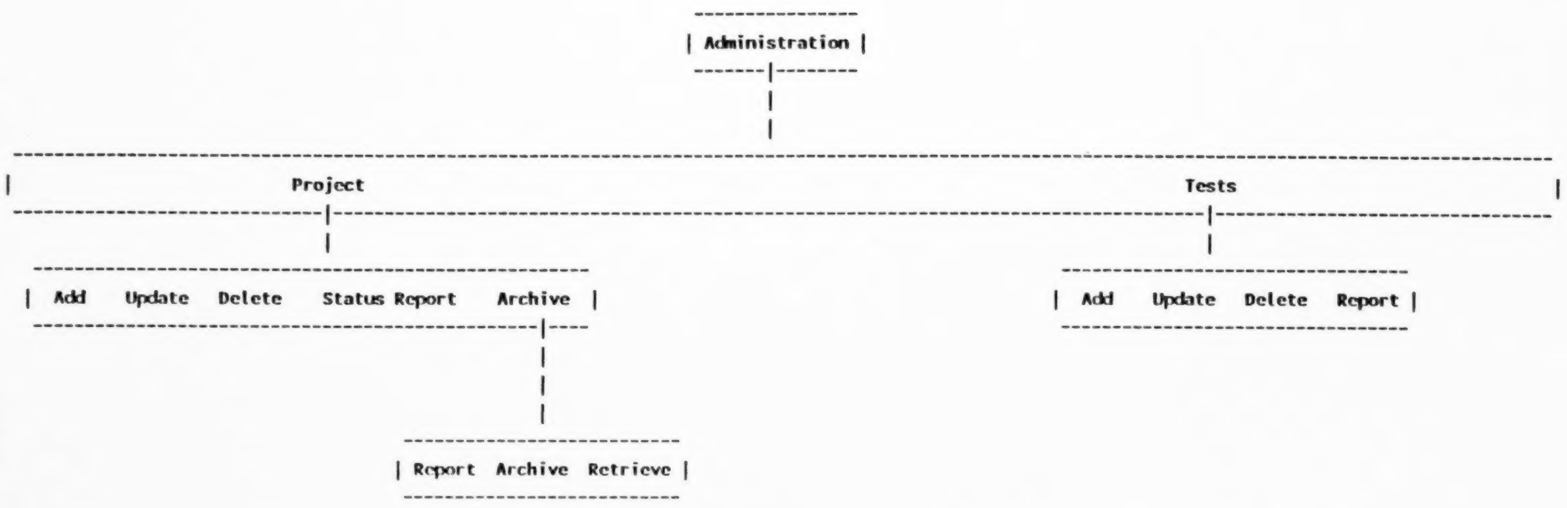
1. Sample Menu Options


Sample
Login
Reports
Data Base
Disposition
Single
Batch
Status
Urgent
Critical
Worklist
Res.Sum
Location
Archive
Update
Delete
Tests
Export Data
Archival
Add
Delete
dBase III
SDF
Delimited
Report
Archive
Retrieve
Normal
Cancel
Hold
Approved
Release
Other

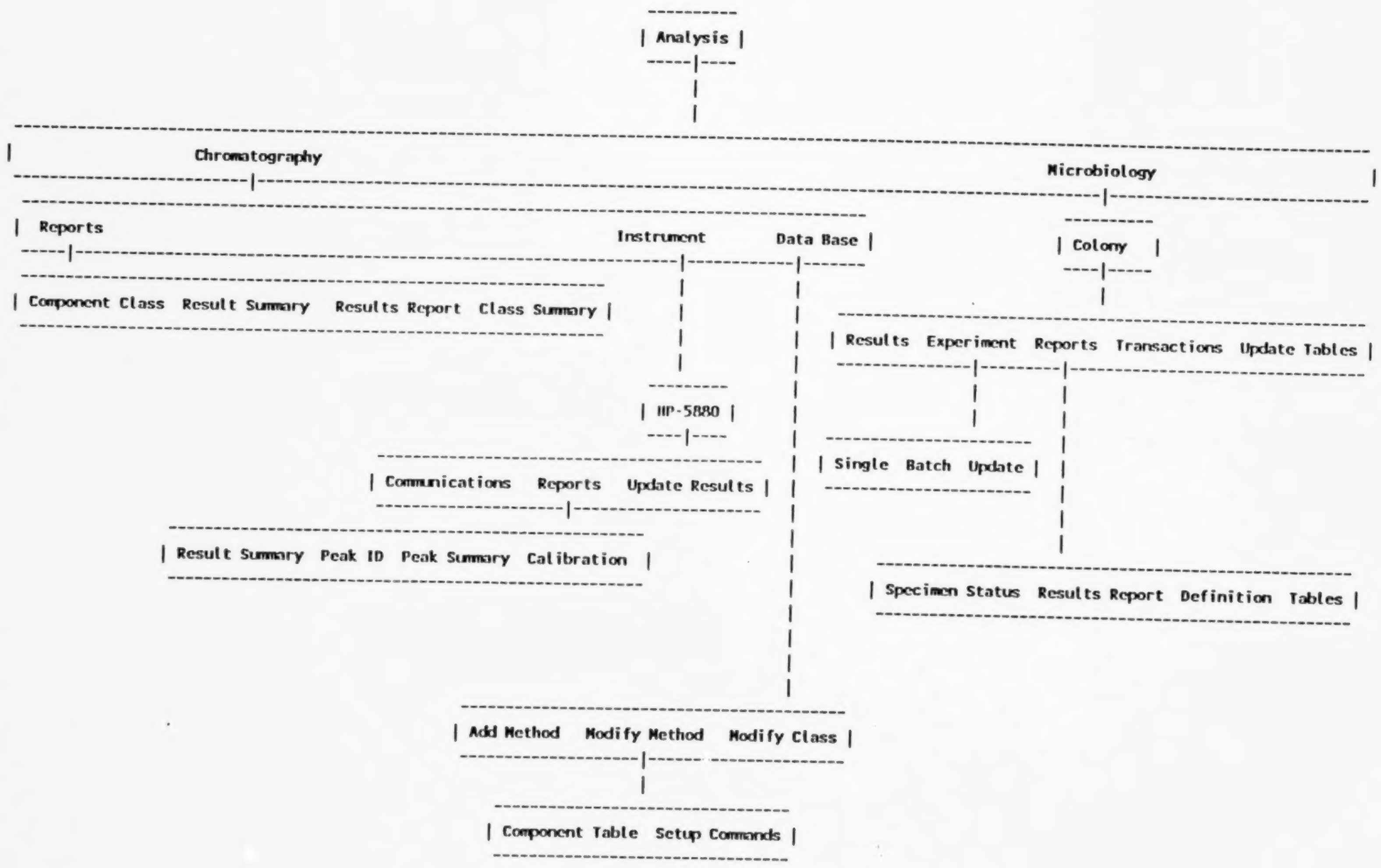
2. System Menu Options

```
                                                  --------
                                                 | System |
                                                  ---|----
                                                     |
                                                     |
                                                     |
                                                     |
---------------------------------------------------------------------------------------------------------
|    Security                 CDD Reports            InLab Options           Aud. Trail Rep        DOS    |
--------|--------------------------|------------------------------------------------------------------------
  ---------------                  |
 | Users  Report |                 |
  ---------------                  |
                                   |
                          --------------------
                         |  Map  Fields  Files |
                          --------------------
```

3. Administration Options Menu


Administration
Project
Tests
Add
Update
Delete
Status Report
Archive
Add
Update
Delete
Report
Report
Archive
Retrieve

IV. Analysis Options Menu


Analysis
Chromatography
Microbiology
Reports
Instrument
Data Base
Colony
Component Class
Result Summary
Results Report
Class Summary
Results
Experiment
Reports
Transactions
Update Tables
HP-5880
Single
Batch
Update
Communications
Reports
Update Results
Result Summary
Peak ID
Peak Summary
Calibration
Specimen Status
Results Report
Definition
Tables
Add Method
Modify Method
Modify Class
Component Table
Setup Commands

# APPENDIX B

# INLAB REPORTS

### 1. Sample Reports

Note: The Sample Status, Urgent Sample, and Critical Sample reports all have an associated description report. The format of these description reports is presented under Sample Status Report.

a.
Title: Sample Status Report
Path: SAMPLE/REPORTS/STATUS
Purpose: To list the status, disposition, and description of every sample in the project

```
   Page No.    1                  Project: DEMO
   5/15/86                     Sample Staus Report

Sample               Exp     Sample     Sample       Date       Required    Test
ID        Test        #      Status     Disposition  Received   By          Date

86000169  MB100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/16/86
86000169  GC100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/17/86
86000170  MB100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/16/86
86000170  GC100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/17/86
86000171  MB100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/16/86
86000171  GC100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/17/86
86000172  MB100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/16/86
86000172  GC100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/17/86
86000173  MB100       1      LOGGED      NORMAL       05/13/86  05/20/86    5/16/86
```

```
   Page No.    1             Project:  DEMO
   5/15/86               Sample Description Report

    Sample
    ID        Test       Sample Description           Comments

    86000169  MB100,     Dimethylvinyl chloride,
              GC100      colorless liquid
    86000170  MB100,     Dimethylvinyl chloride,
              GC100      colorless liquid
    86000171  MB100,     Dichloropentanol,
              GC100      clear liquid
    86000172  MB100,     Dichloropentanol,
              GC100      clear liquid
    86000173  MB100,     Trichlorohexene,             Handle with care
              GC100      white powder
```

b.
Title: Urgent Sample Report
Path: SAMPLE/REPORTS/URGENT
Purpose: To list and describe samples which are approaching their completion dates

```
   Page No.   1          Project:  DEMO
   5/15/86             Urgent Sample Report

Sample          Exp        Sample   Sample           Date       Required   Days to
ID        Test   #   Pri   Status   Disposition      Received   By         Complete

86000169  MB100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000169  GC100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000170  MB100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000170  GC100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000171  MB100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000171  GC100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000172  MB100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000172  GC100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
86000173  MB100  1     1   LOGGED   NORMAL           05/13/86   05/20/86          5
```

c.
Title: Critical Sample Report
Path: SAMPLE/REPORTS/CRITICAL
Purpose: To list and describe samples that are reaching the end of their shelf life.

```
   Page No.   1                    Project: DEMO
   5/15/86                     Critical Sample Report

Sample             Exp         Sample   Sample        Date       Expir      Days to
ID        Test      #    Pri   Status   Disposition   Received   Date       Expire

86000171  MB100     1     1    LOGGED   NORMAL         05/13/86  05/20/86     5
86000171  GC100     1     1    LOGGED   NORMAL         05/13/86  05/20/86     5
86000173  MB100     1     1    LOGGED   NORMAL         05/13/86  05/19/86     4
86000173  GC100     1     1    LOGGED   NORMAL         05/13/86  05/19/86     4
```

d.
Title: Sample Worklist Report
Path: SAMPLE/REPORTS/WORKLIST
Purpose: To list samples with a status of logged by work group

```
Page No.   1             Project:  DEMO
5/15/86               Sample Worklist Report

Service Group:  HERL
Sample                   Logged    Required    Expiration
ID        Test           Date      By          Date

86000169  MB100          05/13/86  05/20/86    05/30/86
86000170  MB100          05/13/86  05/20/86    05/30/86
86000171  MB100          05/13/86  05/20/86    05/20/86
86000172  MB100          05/13/86  05/20/86    06/19/86
86000173  MB100          05/13/86  05/20/86    05/19/86

Service Group: AEERL

86000169  GC100          05/13/86  05/20/86    05/30/86
86000170  GC100          05/13/86  05/20/86    05/30/86
86000171  GC100          05/13/86  05/20/86    05/20/86
86000172  GC100          05/13/86  05/20/86    06/19/86
86000173  GC100          05/13/86  05/20/86    05/19/86
```

e.
Title: Sample Results Summary Report
Path: SAMPLE/REPORTS/RES.SUM
Purpose: To present the results of sample testing with quality control limits and target values

```
Page No.   1             Project:  DEMO
5/16/86           Sample Results Summary Report

Sample              Lower    Target   Upper              QC
ID        Test      Limit    Value    Limit    Result    Flag

86000169  GC100     1000     1700      2300    1497.23
86000170  GC100     1000     1700      2300    800.37     -
86000171  GC100     1000     1700      2300    2513.77    +
86000172  GC100     1000     1700      2300    1621.00
86000173  GC100     1000     1700      2300    2720.11    +
```

f.
<u>Title</u>: Sample Location Report
<u>Path</u>: SAMPLE/REPORTS/LOCATION
<u>Purpose</u>: To present the location of samples in the laboratory

```
Page No.   1            Project:  DEMO
5/14/86              Sample Location Report

 Sample     Location    Container    Log    Date      Received    Sample
 ID         ID          Number       Page   Rec'd     From        Description

86000169     1          76           19     5/13/86    EPA          dimethvinylchl.
86000170     1          77           19     5/13/86    EPA          dimethvinylchl.
86000171     4          25           21     5/13/86    EPA        dichloropentanol
86000172     4          26           21     5/13/86    EPA        dichloropentanol
86000173     5          52           22     5/13/86    EPA         trichlorohexene
```

## 2. System Reports

a.
<u>Title</u>: Authorized User List
<u>Path</u>: SYSTEM/SECURITY/REPORT
<u>Purpose</u>: To list when users logged on to the system

```
Page No.   1                  Project: DEMO
5/15/86                    Authorized User List


                         Date      Time      Total
                         Last      Last      Times      Secrity
User ID   Organization   On        On        On         Level

TECH1     AAA            5/13/86   09:06:44   1         5
MANAGER   AAA            5/15/86   10:42:11   5         10
```

b.

Title: Audit Trail Report
Path: SECURITY/AUD TRAIL REP.
Purpose: To list the functions executed by each user

```
Page No.   1              Project:DEMO ·
5/15/86                 Audit Trail Report

            Date         Time
            Function     Function     Function
User ID     Executed     Executed     Executed     Description

TECH1       5/13/86      09:00:57     LOGON        User logon
TECH1       5/13/86      09:01:00     BLOGIN       Login batch samples
TECH1       5/13/86      09:04:15     BLOGIN       Login batch samples
TECH1       5/13/86      09:06:21     SLOGIN       Login single sample
TECH1       5/13/86      09:06:45     LOGOFF       Log user off
MANAGER     5/15/86      10:39:22     LOGON        User logon
MANAGER     5/15/86      10:39:30     USERLIST     Security report
MANAGER     5/15/86      10:41:00     AUDITREP     Audit trail report
MANAGER     5/15/86      10:42:11     LOGOFF       Log user off
```

### 3. Administrative Reports

a.

Title: Project Status Report
Path: ADMINISTRATION/PROJECT/STATUS REPORT
Purpose: To give the status of each InLab project

```
  Page No.   1
  5/15/86                Project Status Report

                    Target       Total     Samples
                    Completion   Samples   In         Samples
Project  Submitter  Date         Logged    Progress   Completed  Description

DEMO     BBB        5/20/86      10        0          0          EPA tests
PT2      CCC        5/17/86      25        5          20         Atlanta air
```

b.

Title: Test Definition Report
Path: ADMINISTRATION/TESTS/REPORT
Purpose: To list the definitions of every test associated with a particular project

```
Page No.   1            Project:  DEMO
5/15/86               Test Definition Report

         Hours       Minutes      Test     Test      Test       Test
Test     Required    Required     Cost     Group     Device     Description

MB100      4          30          20.00    HERL      COL
GC100      1          45          25.00    AEERL     CHROM
```

## 4. Analysis Reports

a.

Title: Chromatography Component Class Table
Path: ANALYSIS/CHROMATOGRAPHY/REPORTS/COMPONENT CLASS
Purpose: To summarize chemical components grouped into their corresponding class codes

```
Page No.   1             Project:  DEMO
5/16/86             Chromatography Component Class Table

Class
Code                Component Classification

  0                       Unknown
  1                       Alkanes
  2                       Alkenes
  3                       Aromatics
  4                       Alcohols
  5                       Esters
  6                       Amines
  7                       Aldehydes
  8                       Ketones
  9                       Ethers
 10                       Nitriles
```

b.
Title: Chromatography Results Summary
Path: ANALYSIS/CHROMATOGRAPHY/RESULTS SUMMARY
Purpose: To summarize the results of all completed chromatography samples for a particular project

```
Page No.   1             Project:  DEMO
5/17/86            Chromatography Results Summary

                   Total     Unknown
Sample     Test    Peaks     Peaks       Amount       Area

86000169   GC100   10         4          102.678      304.887
86000170   GC100   11         5          104.005      304.901
86000171   GC100   04         1          223.598      506.323
86000172   GC100   04         1          223.650      506.335
86000173   GC100   05         3          489.794      1076.710
```

c.
Title: Chromatography Results Report
Path: ANALYSIS/CHROMATOGRAPHY/REPORTS/RESULTS REPORT
Purpose: To present detailed information about the constituent components of a sample

```
Page No.   1        Project:  DEMO -- Sample: 86000173 -- Test: GC100
5/17/86                     Chromatography Results Report

Peak    Retention     Response     Peak       Peak     Peak
No.     Time          Factor       Amount     Area     Height    Component

 1      1.02          2.00          10.55      50.87    3.0      METHANE
 2      2.23          2.00          25.04      69.44    5.5      PROPANE
 3      4.95          2.50         176.79     389.85    6.8      BUTANE
 4      7.99          1.95         270.20     508.72    9.1    ACETALDEHYDE
 5      8.15          0.20           7.21       1.44    2.0      UNKNOWN
```

d.
Title: Component Classification Summary
Path: ANALYSIS/CHROMATOGRAPY/REPORTS/CLASS SUMMARY
Purpose: To present the constituent components of a sample

```
Page No.   1    Project:  DEMO -- Sample: 86000173 -- Test: GC100
5/17/86                Component Classification Run Report

     Classification                  Concentration

        Unknown                         1.005
        Aldehydes                      98.100
        Alkanes                         0.910
      **Subtotal**
     ***Total***                      100.015
```

e.
Title: HP-5880 Analysis Results Summary
Path: ANALYSIS/CHROMATOGRAPHY/INSTRUMENT/HP-5880/REPORTS/RESULT SUMMARY
Purpose: To present a summary of chromatography results for all samples in a particular project

```
Page No.   1               Project:  DEMO
5/17/86              HP-5880 Analysis Results Summary

Sample    Test   Meth   Sampamt   Mult   Refw   Nrefw   Peaks   Unk   Conc

86000169 GC100   1      .200      1.50   .05    0.0     10      04    102.678
86000170 GC100   1      .200      1.50   .05    0.0     11      05    104.005
86000171 GC100   2      .500      1.00   .10    0.5     04      01    223.598
86000172 GC100   2      .500      1.00   .10    0.5     04      01    223.650
86000173 GC100   1      1.00      1.50   0.0    1.0     05      03    489.794
```

f.
Title: HP-5880 Detailed Peak Report
Path: ANALYSIS/CHROMATOGRAPHY/INSTRUMENT/REPORTS/PEAK ID
Purpose: To present detailed peak information for a particular sample

```
Page No.   1    Project:  DEMO -- Sample: 86000173 -- Test: GC100
5/17/86                HP-5880  Detailed Peak Report

        Actual                 Peak
RT      RT        Type         Amount     Cal#     Ref     Class     Component

1.02              10230        10.55      201      0       1         METHANE
2.23              00320        25.04      105      0       1         PROPANE
4.95    4.51      01023        176.79     102      1       1         BUTANE
7.99    8.00      00330        270.20     103      0       7         ACETALDEHYDE
8.15              20210        7.21       0        0       0         UNKNOWN
```

g.

<u>Title</u>: HP-5880 Peak Summary Report
<u>Path</u>: ANALYSIS/CHROMATOGRAPHY/INSTRUMENT/HP-5880/REPORTS/PEAK SUMMARY
<u>Purpose</u>: To summarize component information for a particular sample

```
Page No.   1        Project:  DEMO -- Sample: 86000173 -- Test: GC100
5/17/86                    HP-5880 Peak Summary Report

   RT          Conc          Cal#         Component

  1.02         .334          201          METHANE
  2.23         .325          105          PROPANE
  4.95         .910          102          BUTANE
  7.99        98.10          103          ACETALDEHYDE
  8.15         .344            0          UNKNOWN
```

h.

<u>Title</u>: HP-5880 Calibration Table
<u>Path</u>: ANALYSIS/CHROMATOGRAPHY/INSTRUMENT/HP-5880/REPORTS/CALIBRATION
<u>Purpose</u>: To present calibration data for a particular method

```
Page No.   1        Project:  DEMO    Method:  06
                      HP-5880 Calibration Table

Cal#     RT     Lvl    Amount    Amt/Area    Ref    Class    Component

  0     0.50     0      1.00       1.00       0       0      UNKNOWN
101     1.00     1      1.00       0.50       1       1      METHANE
102     1.10     1      2.01       1.55       0       2      ETHANE
103     1.20     2      1.65       1.00       0       3      BUTANE
104     1.30     2      0.55       1.05       0       4      PENTANE
105     1.40     2      2.00       1.50       1       5      HEXANE
```

i.

<u>Title</u>: Microbiology Status Report
<u>Path</u>: ANALYSIS/MICROBIOLOGY/COLONY/REPORTS/SPECIMEN STATUS
<u>Purpose</u>: To list the status of each sample/test/strain/activation combination for a project

```
  Page No.   1             Project:  DEMO
  5/16/86              Microbiology Status Report

Sample                                 Act                Dose                         Xmit     Exp
ID        Test    Strain   Bat   Act   Batch   Rep   Units     Status     Xmit   Date      #

86000169 MB100    TM35      1     N             1    ug/ml    COMPLETE    Y    5/16/86   1
86000169 MB100    TM35      1     Y    QAA      1    ug/ml    COMPLETE    Y    5/16/86   1
86000170 MB100    TA100     5     Y    QAA      1    ug/ml    COMPLETE    Y    5/16/86   1
86000171 MB100    TM35      2     N             1    ug/ml    PENDING     N              1
86000172 MB100    TA92      1     N             1    ug/ml    PENDING     N              1
86000173 MB100    TA100     5     Y    BDD      3    mg/ml    PENDING     N              1
```

j.
<u>Title</u>: Microbiology Results Report
<u>Path</u>: ANALYSIS/MICROBIOLOGY/COLONY/REPORTS/RESULTS REPORT
<u>Purpose</u>: To list counts for each strain/activation/dose combination for a sample and describe the test results

```
  Page No.   1    Project:  DEMO --Sample: 86000169 -- Test: MB100
  5/16/86                  Microbiology Results Report

                 Sol/  Solamt/  Sol                                                 Exp
Strain   Act  Pos   Dose     Uni  Cnt1  BG  Cnt2  BG  Cnt3  BG  Cnt4  BG  Cnt5  BG   #

 TM35     N    1    0.50     ml    55    1   57    1   57    1                         1
 TM35     Y    1    0.50     ml    67    6   67    6   66    6                         1

   Page No.   1    Project:  DEMO -- Sample: 86000169 -- Test: MB100
   5/16/86             Microbiology Results Description Report

                                                                          Exp
     Strain       Act       Test      Notes                                #

     TM35          N        MB100     Colonies appear normal               1

     TM35          Y        MB100     Colonies appear cloudy, with         1
                                      sheen.  Please investigate to
                                      determine if sample needs to be
                                      re-tested.
```

k.
Title: Microbiology Definition Report
Path: ANALYSIS/MICROBIOLOGY/COLONY/REPORTS/DEFINITION
Purpose: To list the parameters of a particular experiment

```
 Page No.   1     Project: DEMO -- Sample: 86000169 -- Test: MB100
 5/16/86                   Experiment Definition Report

 Number of Replicates:  1   Activation: Y   Activation Batch: QAA

 Strains:  TM35         >        >        >        >
 Batch #:   1

 Strains:               >        >        >        >
 Batch #:

 Doses:  1. 0.1         2.          3.          4.          5.
         6.             7.          8.          9.          10.

 Dose Units:  ug/ml        Research Lab:  BCLO      Source Lab:  BMGS

                     Solvent/Positive Controls -- Activation:  Y
        Sol                          Pos                           Pos
Strain  1   Amount  Units  1  Dose1  Dose2  Dose3  2  Dose1  Dose2  Dose3

TM 35   1    0.50   ml     51  0.50  0.75


Number of Replicates:  1   Activation: N   Activation Batch:

  Strains:  TM35         >        >        >        >
  Batch #:   1

  Strains:               >        >        >        >
  Batch #:

  Doses:  1. 0.9         2.          3.          4.          5.
          6.             7.          8.          9.          10.

  Dose Units:  ug/ml        Research Lab:  BCLO      Source Lab:  BMGS

                     Solvent/Positive Controls -- Activation: N
        Sol                          Pos                           Pos
Strain  1   Amount  Units  1    Dose1  Dose2  Dose3  2  Dose1  Dose2  Dose3

TM35    1    0.50   ml     51    1.0    1.5

  Special Instructions:    None
```

1.
Title: Microbiology Table Reports
Path: ANALYSIS/MICROBIOLOGY/COLONY/REPORTS/TABLES
Purpose: To list the codes and abbreviations that are acceptable to use on InLab microbiology screens

Page No. 1 Microbiology Source Laboratory Table
5/17/86

| Code | Item Description |
|---|---|
| BMGS | BIOCHEMICAL AND MICROBIAL GENETIC SECT |
| CASC | CHARACTERIZATION AND ASSESSMENT SECTION |
| CMBX | CARCINOGENESIS AND METABOLISM BRANCH |
| EBDX | EXPERIMENTAL BIOLOGY DIVISION |
| GBBX | GENETIC BIOASSAY BRANCH |
| GTDX | GENETIC TOXICOLOGY DIVISION |
| HSDX | HUMAN STUDIES DIVISION |
| JOEL | BRANCH OFFICE, GENETIC BIOASSAY BRANCH |
| MSDS | MONITORING SYSTEM DEVELOPMENT SECTION |
| FSSX | FIELD STUDIES SECTION |
| SFMC | SOURCES, FUELS, AND MOLECULAR CHEMISTRY |
| ARBX | AEROSOL RESEARCH BRANCH |
| MSER | MOBILE SOURCE EMISSIONS RESEARCH BRANCH |
| APBX | ADVANCED PROCESS BRANCH |
| CRBX | COMBUSTION RESEARCH BRANCH |
| FPBX | FUEL PROCESS BRANCH |
| PTBX | PARTICULATE TECHNOLOGY BRANCH |
| CINH | CINCINNATI--HEALTH RESEARCH GROUP |
| CABS | CHARACTERIZATION AND EMISSION BRANCH |
| SDSB | STANDARDS DEVELOPMENT AND SUPPORT BRANCH |
| TAEB | TECHNOLOGY ASSESSMENT AND EVALUATION BRANCH |
| CCCC | OTHER LABORATORIES |
| DUKE | DUKE UNIVERSITY |
| UNEX | UNIVERSITY OF NORTH CAROLINA |
| AAAA | TEST |

| CODE | ITEM DESCRIPTION |
|---|---|
| ALL | ALL LABORATORIES |
| BCLO | BATTELLE-COLUMBUS LABORATORIES, OH |
| BIOL | BIOLABS, INC., IL |
| BMGS | BIOCHEMICAL AND MICROBIAL GENETICS SEC |
| BTLI | BIO-TECHNICS LABORATORIES, INC., CA |
| BXCM | BIOASSAY SYSTEM CORPORATION, MD |
| CASC | CHARACTERIZATION AND ASSESSMENT SECTION |
| CCCC | LABORATORIES NOT LISTED IN CODES |
| CWRU | CASE WESTERN RESERVE UNIVERSITY, OH |
| EGGM | E G & G MASON RESEARCH INSTITUTE |
| GENX | GENEX CORPORATION, MD |
| HLAI | HAZLETON LABORATORIES AMERICA, INC., VA |
| HTRI | HILL TOP RESEARCH, INC. OH |
| IITR | IIT RESEARCH INSTITUTE, IL |
| JPSA | JEFFERSON PROFESSIONAL SERVICES, AR |
| LITB | LITTON BIONETICS, INC. |
| LLLN | LITRON LABORATORIES, LTD., NY |
| MAMD | MICROBIOLOGICAL ASSOCIATES, MD |
| MLIV | MELOY LABORATORY, INC., VA |
| MRCO | MONSANTO RESEARCH CORP., OH |
| MSDS | MONITORING SYSTEM DEVELOPMENT SECTION |
| NEIC | NEIC, U.S. EPA, CO |
| NSNC | NORTHROP SERVICES, INC., NC |
| NSOS | NORTHROP SERVICES, INC., ON-SITE |
| RSSW | RALTECH SCIENTIFIC SERVICES, WI |
| RTIX | RESEARCH TRIANGLE INSTITUTE |
| SFRE | SOUTHWEST FOUND. FOR RES. AND ED., TX |
| SRIC | SRI INTERNATIONAL, CA |
| URCA | UNILAB RESEARCH, CA |

Page No. 1 Microbiology Concentration Units Table
05/17/86

| CODE | ITEM DESCRIPTION |
|---|---|
| MG/KG | MILLIGRAMS PER KILOGRAM |
| MG/GM | MILLIGRAMS PER GRAM |
| G/KG | GRAMS PER KILOGRAM |
| UG/KG | MICROGRAMS PER KILOGRAM |

Page No. 1 Microbiology Mass Units Table
05/17/86

| CODE | ITEM DESCRIPTION |
|---|---|
| NA | NOT APPLICABLE |
| NS | NOT SPECIFIED |
| OT | OTHER |
| TG | TERAGRAM |
| GG | GIGAGRAM |
| KG | KILOGRAM |
| HG | HECTOGRAM |
| GM | GRAM |
| DG | DECIGRAM |
| CG | CENTIGRAM |
| MG | MILLIGRAM |
| UG | MICROGRAM |
| NG | NANOGRAM |
| PG | PICOGRAM |
| UL | MICROLITER |
| ML | MILLILITER |
| L | LITER |

05/17/86

# Microbiology Microorganism Strain Table

| CODE | ITEM DESCRIPTION |
|---|---|
| TA1535 | SALMONELLA (AMES) STRAIN TA1535 |
| TA1537 | SALMONELLA (AMES) STRAIN TA1537 |
| TA1538 | SALMONELLA (AMES) STRAIN TA1538 |
| TA100 | SALMONELLA (AMES) STRAIN TA100 |
| TA98 | SALMONELLA (AMES) STRAIN TA98 |
| TA90 | SALMONELLA (AMES) STRAIN TA90 |
| TA92 | SALMONELLA (AMES) STRAIN TA92 |
| LT2 | SALMONELLA (AMES) STRAIN LT2 |
| TA1530 | SALMONELLA (AMES) STRAIN TA1530 |
| TA1532 | SALMONELLA (AMES) STRAIN TA1532 |
| TA1534 | SALMONELLA (AMES) STRAIN TA1534 |
| TA1950 | SALMONELLA (AMES) STRAIN TA1950 |
| TA1952 | SALMONELLA (AMES) STRAIN TA1952 |
| TA1963 | SALMONELLA (AMES) STRAIN TA1963 |
| TA1975 | SALMONELLA (AMES) STRAIN TA1975 |
| TA1977 | SALMONELLA (AMES) STRAIN TA1977 |
| TA1978 | SALMONELLA (AMES) STRAIN TA1978 |
| TA2410 | SALMONELLA (AMES) STRAIN TA2410 |
| TA2631 | SALMONELLA (AMES) STRAIN TA2631 |
| TA2637 | SALMONELLA (AMES) STRAIN TA2637 |
| TA2641 | SALMONELLA (AMES) STRAIN TA2641 |
| G46 | SALMONELLA (AMES) STRAIN G46 |
| C3076 | SALMONELLA (AMES) STRAIN C3076 |
| D3052 | SALMONELLA (AMES) STRAIN D3052 |
| 8A1535 | SALMONELLA (AMES) STRAIN 8A1535 8AG RES |
| 8A1537 | SALMONELLA (AMES) STRAIN 8A1535 8AG RES |
| 8A1538 | SALMONELLA (AMES) STRAIN 8A1535 8AG RES |
| 8A100 | SALMONELLA (AMES) STRAIN 8A100 8AG RES |
| 8A98 | SALMONELLA (AMES) STRAIN 8A98 8AG RES |
| TM35 | SALMONELLA (SKOPEK-THILLY) STRAIN TM35 |
| TM677 | SALMONELLA (SKOPEK-THILLY) STRAIN TM677 |
| 1535ND | SAL NITROR-DEF STRAIN TA1535ND |
| 1537ND | SAL NITROR-DEF STRAIN TA1537ND |
| 1538ND | SAL NITROR-DEF STRAIN TA1538ND |
| 98ND | SAL NITROR-DEF STRAIN TA98ND |
| 100ND | SAL NITROR-DEF STRAIN TA100ND |
| TA98NR | SAL NITROR-DEF STRAIN TA98/NR |
| 98P6 | SAL NITROR-DEF STRAIN TA98/1,8DNP6 |
| 98NRP1 | SAL NITROR-DEF STRAIN TA98/NR/1,8DNP1 |
| 98NRP2 | SAL NITROR-DEF STRAIN TA98/NR/1,8DNP2 |
| 98NRP5 | SAL NITROR-DEF STRAIN TA98/NR/1,8DNP5 |
| 98P6N1 | SAL NITROR-DEF STRAIN TA98/1,8DNP6/NR1 |
| 98P6N8 | SAL NITROR-DEF STRAIN TA98/1,8DNP6/NR8 |
| 98P6NA | SAL NITROR-DEF STRAIN TA98/1,8DNP6/NR11 |
| 98P6NB | SAL NITROR-DEF STRAIN TA98/1,8DNP6/NR12 |
| 98NIR1 | SAL NITROR-DEF STRAIN TA98NIR301 |
| 98NIR2 | SAL NITROR-DEF STRAIN TA98NIR302 |
| 98NIR3 | SAL NITROR-DEF STRAIN TA98NIR303 |
| 98NIR4 | SAL NITROR-DEF STRAIN TA98NIR304 |

Page No. 1 Microbiology Solvent/Positive Table
05/17/86

| CODE | ITEM DESCRIPTION |
|---|---|
| 50 | NEGATIVE (NO SOLVENT) |
| 51 | DISTILLED WATER |
| 52 | NORMAL SALINE |
| 53 | K PHOSPHATE BUFFER 0.050-0.10M PH 7.0 |
| 54 | DIMETHYL SULFOXIDE |
| 55 | 100 PERCENT ETHANOL |
| 56 | METHANOL |
| 57 | ACETONE |
| 58 | CORN OIL |
| 99 | OTHER SOLVENT |
| 01 | SODIUM AZIDE |
| 02 | 9-AA |
| 03 | 2-NF |
| 04 | 2-AA, 2A, 2-AMINOANTHRACINE |
| 05 | MNNG |
| 06 | AF-2 (AFLATOXIN) |
| 07 | 2-AMINOFLUORENE (2AF) |
| 08 | DBMA |
| 09 | OTHER POSITIVE |

Page No. 1 Microbiology Background Code Table
05/17/86

| CODE | ITEM DESCRIPTION |
|---|---|
| 1 | NORMAL |
| 2 | PARTIALLY CLEAR |
| 3 | CLEAR |
| 4 | CONTAMINATED |
| 5 | PRECIPITATION AND NORMAL |
| 6 | PRECIPITATION AND PARTIALLY CLEAR |
| 7 | PRECIPITATION AND CLEAR |
| 8 | SMALL COLONIES |
| 9 | HEAVY |
| A | |
| B | |
| C | |
| D | |
| \| | |
| Z | |

# Microbiology Phenocopy Check Table

| CODE | ITEM DESCRIPTION |
|---|---|
| 1 | TRUE MUTANTS |
| 2 | PHENOCOPIES |
| 3 | MIXED POPULATION |
| 4 | QUESTIONABLE |
| 9 | OTHER |

# APPENDIX C

# INLAB QUICK REFERENCE GUIDE

## MENU KEYS

| Key Name | Function |
|---|---|
| Cursor Down, Enter | Selects highlighted menu item |
| Cursor Up | Displays next highest line of menu |
| Cursor Left | Highlights menu item to the left of item currently highlighted |
| Cursor Right | Highlights menu item to the right of item currently highlighted |
| Esc | At menu's top line, exits InLab (if possible); at menu's lower levels, returns user to top line; at most data-entry screens, returns user to menu. |

## INPUT KEYS (FIELD TO FIELD)

| Key Name | Function |
|---|---|
| Ctrl + End | Moves cursor to last field in current section of screen |
| Ctrl + Home | Moves cursor to first field in current section of screen |
| Cursor Down | Moves cursor to next field (acts like Enter key in most cases) |
| Cursor Up | Moves cursor to previous field |
| Enter | Enters data and moves cursor to next field |
| Esc | Returns user to menu or to previous situation |

## MISCELLANEOUS KEYS

| Key Name | Function |
|---|---|
| Alt + F1 | Allows the user, working at the menu's bottom line, to assign a function key that thereafter moves the user to the function associated with the highlighted menu item |
| Alt + F10 | Displays user-defined menu |
| F1 | Displays function-key assignments |

## EDITING KEYS

| Key Name | Function |
|---|---|
| Backspace | Deletes character behind cursor, moving succeeding characters to left |
| Ctrl + U | Returns field's contents to what had appeared there before the cursor last entered the field |
| Cursor Left | Moves cursor to left in field |
| Cursor Right | Moves cursor to right in field |
| Del | Deletes character at cursor, moving succeeding characters to left |
| End | Moves cursor to last position in field |
| Home | Moves cursor to first position in field |
| Ins | Inserts character to left of character in current position, moving characters to right |

## REPORT-SCANNING KEYS

| Key Name | Function |
|---|---|
| -, PgUp, U | Displays 23 lines previous to lines on screen |
| +, D, Enter, PgDn | Displays 23 lines subsequent to lines on screen |
| /abcd | Searches for next occurrence of abcd |
| A | Searches again for next occurrence of abcd |
| Cursor Down | Scrolls report one line down |
| Cursor Up | Scrolls report one line up |
| Cursor Left | Scrolls report 20 columns to left |
| Cursor Right | Scrolls report 20 columns to right |
| End, B | Displays bottom 23 lines of report |
| Esc | Returns user to menu |
| Home, T | Displays top 23 lines of report |
| P | Prints report from beginning; if report is being printed, stops the printing |